TEACHERS' MANUAL OF DRAWING

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A TEACHERS' MANUAL OF DRAWING

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TEACHERS' MANUAL OF DRAWING

FOR ELEMENTARY AND HIGH SCHOOLS

BY

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TORONTO
THOMAS NELSON AND SONS, LTD.
LONDON, EDINBURGH, AND NEW YORK

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PREFACE

THIS book on the Teaching of Drawing is primarily for the grade teacher and the regular High School teacher who has to deal with drawing. It is not intended for the special teacher with an art training. The aim throughout has been to avoid the use of technical language and to make the method as clear and straightforward as possible. A wide range of material is given to broaden the scope of the work, and to allow the individual teacher a choice of topics to suit pupils in various environments.

Steps I., II., III., and IV., in Design, with the accompanying illustrations, together with a number of illustrations from the Primary Section, were contributed to *Drawing and Design* by the writer. These have been reprinted here by the courtesy of the Department of Education, Victoria, B.C.

The Table of Work given should not be regarded as a rigid limit. Each type of work should be attempted, but no teacher is expected to cover all the material given in any one division ; this, in fact, would be impossible.

The Primary and Junior Grades have been combined because the pupils of these grades have the same mental outlook. Any change between the first and third year is one of degree only.

Between the Junior Grades and the Intermediate, however, a distinct difference in mental outlook develops, and the methods of approaching the work must change.

From here onwards, again, the change is only one of degree. Little or no change is therefore made in method, and no break appears between Elementary and High School work. Consequently, both in the Drawing and the Design Sections of the book no division has been made between these grades.

For the purpose of allotting the work, five divisions have been made in the school life of the pupil, as follows :

First Three Years of School	. Primary and Junior.
Fourth and Fifth Years . .	. Intermediate B.
Sixth Year	. Intermediate A.
Seventh and Eighth Years .	. Senior.
Ninth and succeeding Years	. High School.

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A TEACHERS' MANUAL OF DRAWING

TABLE OF WORK

PRIMARY AND JUNIOR GRADES

THE requirements of these grades are dealt with in a separate section. The lessons should be arranged to suit the individual needs of each teacher. They may be suggested by the other subjects of the curriculum, and by the various seasons of the year. Much will depend upon the environment of the school and the course of study followed in other branches of work. If desired, pupils in the third year could work designs from Step I., Design. These make good exercises in measuring.

INTERMEDIATE B—FOURTH AND FIFTH YEARS

Drawing.—Representation from the object or nature in two dimensions. (See Drawing Section.) Reference to illustrations will give an idea of relative difficulties, and assist in choosing material in proper sequence.

Memory Drawing.—This should be taken frequently.

Design.—Simple borders and panels as shown in Steps

I. and II. These may be varied by use of material similar to that shown on Plates 65, 66, 67, and 68.

Lettering.—Skeleton capitals with spacing of letters and words.

Intermediate A—Sixth Year

Drawing.—The more difficult examples from section on representation in two dimensions. (Plate 19.)

Nature Drawing.—Simple sprays of leaves, birds, shells, or any other nature forms available.

Memory Drawing.—Any of the preceding exercises should be taken for a few minutes frequently.

Design.—Borders and panels illustrating symmetry and radiation (Steps III. and IV.). These may be varied with material similar to that given in Step VI., Plates 65, 66, 67, 68, and 73. Posters on history or geography (Step IX.).

Lettering.—Capitals and small letters with spacing of words, lines, and margins.

Senior Grades—Seventh and Eighth Years

Drawing.—Representation in three dimensions—the perspective of cylindrical and rectangular objects. (Plates 20 to 32.)

Nature Drawing.—Sprays of leaves and flowers, trees, birds, animals (stuffed specimens when available). Time sketches from life occasionally.

Memory Drawing.—Frequently.

Design.—Panels and borders, both symmetrical and non-symmetrical in form and arrangement (Steps III., IV., V.). Material to be used similar to that given

in Step VI., Plates 65 to 77. Poster illustration to history, geography, etc. (Step IX.).

Lettering.—Simple forms of block letters for posters, spacing of a number of lines with margin spaces for notices, posters, etc.

High School—Ninth and succeeding Years

Drawing.—Any of the more difficult examples of three-dimension drawing of cylindrical and rectangular objects. Try these in different media.

Nature Drawing.—The same as for Senior Grade, with more accurate observation and variation in treatment. Drawings from pet animals might be attempted.

Memory Drawing.—At regular intervals.

Design.—Space-filling, making use of any type of material similar to that shown, together with poster work or some simple craft work such as stencilling, etching, linoleum-block printing, etc. (See Step VIII.)

Lettering.—Good block and Roman letters for posters and notices of any description.

GENERAL NOTE FOR ALL GRADES

The summer and fall months are the best for Nature Drawing, especially out of doors. This is the time to provide material for the design lessons which can be carried on during the winter months.

I. PRIMARY AND JUNIOR SECTION

FIRST THREE YEARS OF SCHOOL

PRIMARY Grade drawing is usually dealt with as a thing apart from the drawing of the rest of the school. This is unfortunate and to be deplored, as the work of this department of the school is not some special or peculiar brand of drawing to be shut away by itself in the lower grades.

Like all other drawing, it is a graphic expression, and often, from its naïve spontaneity and sincerity, it is far more expressive than the more laboured work of many older pupils. It is, in fact, for these pupils a language, and provides a great outlet for their lively imagination. It is, probably, after the spoken word, the child's first and best medium of imaginative expression. It is also a medium through which the child's experience of his surroundings can be greatly enlarged. The work itself differs from that of older pupils only in that it is approached with a different outlook.

The Primary pupil has a very limited experience, and is mentally undeveloped. Whereas the adult's concept of the surrounding world is mainly based upon visual appearances, that of the young is by no means so. The sense of touch is largely associated with vision. The mental idea of the objective world is more associated with the felt shape than with visual appearance. This

appears to be the reason for the early use of line in representing forms, and for the fact that the resultant drawings are often diagrammatic and symbolical. This mental outlook continues through at least the first three school years, and for this reason the work of the Primary and Junior Grades has been combined.

The Primary and Junior Grade teacher must appreciate this outlook, and realize that criticism based purely upon visual appearance, such as would be suited to older children and adults, would be entirely out of place. Also, methods of drawing which would be advocated for adults or advanced students may be quite unsuitable for these little people. For example, the method of blocking-in the main masses of a drawing and gradually working down to detail, is seldom found to be effective with young children, who seem to progress better by drawing part by part, adding on as they proceed.

The main aims to be kept in mind would appear to be :

(*a*) The formation of a graphic vocabulary to increase the child's power of expression.

(*b*) The encouragement of graphic expression.

The actual work of these grades will be divided, roughly, into two sections :

(*a*) That of expression or illustration—*informal* and original.

(*b*) Information lessons, that is, lessons in which new forms, methods of drawing and arrangements are presented by the teacher for use in the lessons of the first section—*formal* drawing for the building up of a graphic vocabulary.

These latter lessons will be almost in the nature of

a drill, in which the pupil practises the drawing of some form, say an animal, until it is memorized in the same way that a letter form or a new word is practised until it becomes familiar.

Contrary to what might be expected, the memorizing of a given form has been found to help in the production of original forms, the pupil using the memorized form as the basis for new work.

The forms used will be extremely varied, and will be suggested by other activities of the pupil. They will include the drawing of people, animals, birds, fish, trees, flowers, and common things which enter into the life and activities of the child.

Often the drawing of one type form can be utilized as the base for several particular forms, *e.g.* the same bird form may be developed into several particular types by the addition or alteration of details. The general plan for drawing a dog might be utilized to draw a cat or a cow, but hardly for drawing an elephant.

Material for these lessons must be obtained from all sources—knowledge of real things, animal pets, good pictures, photographs, and drawings. To use this material effectively it is obvious that the teacher must aim at acquiring some skill in draughtsmanship. The power to analyse forms and express them simply, as shown in the accompanying plates, will only come by practice. Simplicity of expression is the result of knowledge, and the power of accurate representation. Good drawings will not result from copying only the simple renderings. Any teacher with the will has the ability to acquire this power, and owes it to the pupils to do so.

Materials

The best materials for drawing in this department are coloured crayons, not containing too much wax, or coloured pencils, used on tinted paper. Some drawings may be made in ordinary pencil on white paper and tinted with crayon, or, in about the third year of school, with water-colour.

At about eight years of age the use of the ruler may be introduced, and simple border patterns attempted.

Squared paper will be found very useful in making simple all-over patterns as well as borders. Simple decorative animal forms, as shown, can be constructed on this type of paper.

Methods

Lessons of the formal type will be suggested by the subjects of the informal lessons. For example, it is required to make a picture to illustrate, say, a language lesson. To do this perhaps a bird or an animal is required. If the children's knowledge of the particular animal is not very good, one or several lessons may be devoted to drawing and memorizing this new form.

This may be accomplished in many ways. A hectographed copy may be traced over to familiarize pupils with the form. The figure may be cut out—drawing with scissors. The cut figure may be used to trace outlines, and finally it may be drawn from the teacher's drawing, line by line, on the blackboard. Some of the illustrations shown will be useful as suggestions in paper-cutting and tearing, which is, after all, a form of drawing.

Use of the Illustrations

The following drawings are in no sense intended to be child-like—the pupil will readily supply that element. They have been planned more from the design point of view, as that method gives simplicity, orderly arrangement, and good, clear form. These points are essential in presenting new forms to children. The simpler and the more definite the form presented, the better will be the mental picture of the pupil.

The teacher is advised not to rely entirely upon the simple design forms here given, but to supplement these with the best pictures available.

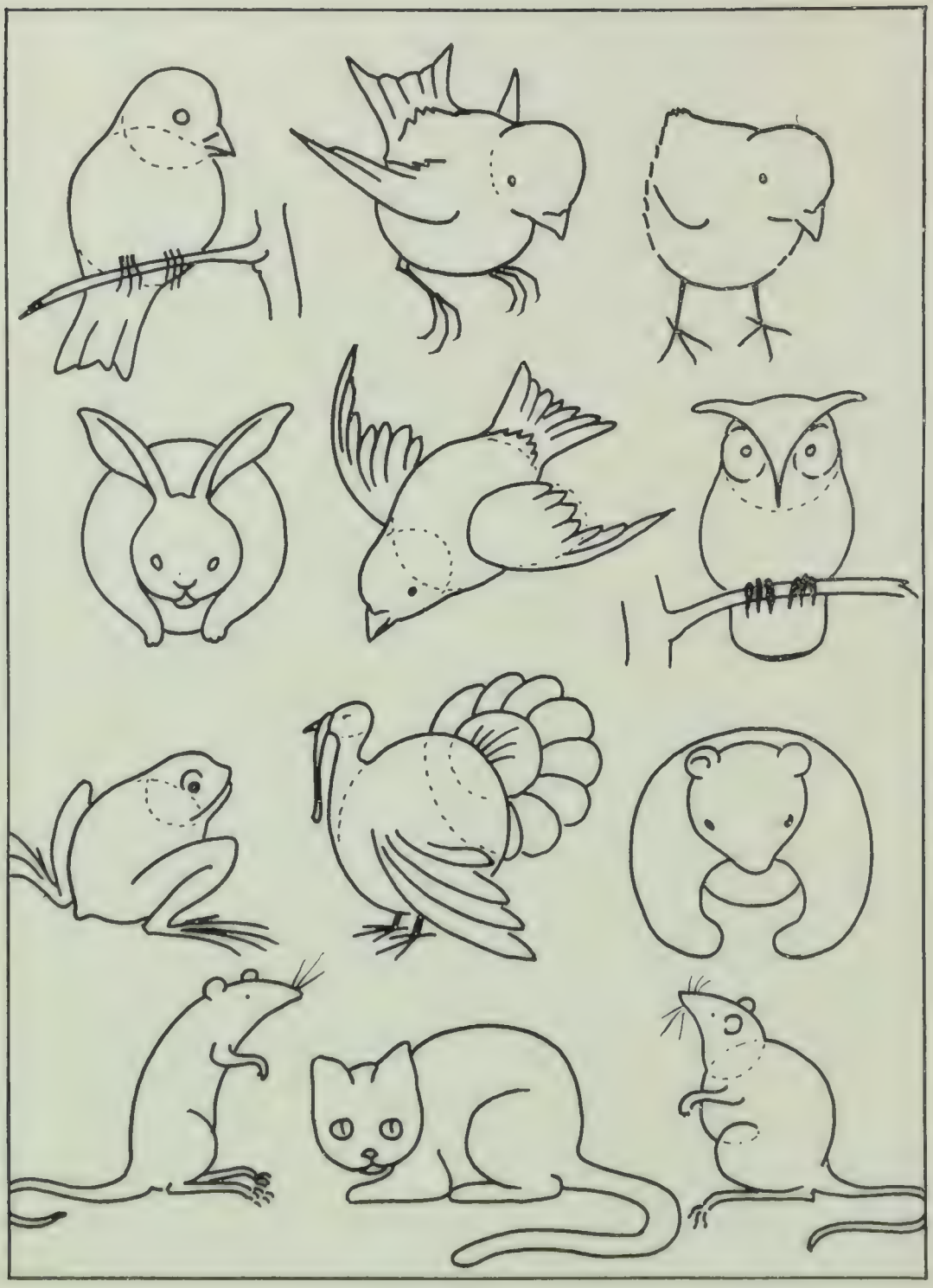
The practice of making drawings from objects and pictures and then giving close thought to reducing these drawings to simple terms will be found a useful asset in teaching any grade. Reference to the illustrations on the following pages should be of assistance in doing this.

The given drawings have been made in line for the purpose of clarity. Different tones of shading suggest different colours. When using colour, especially in such exercises as Plates 10 and 11, note the tones, and make the colours used light and dark according to the diagrams. A totally different effect may be obtained by reversing the positions of these tones, placing the lightest colours in the black spaces and the dark colours in the white spaces.

PRIMARY AND JUNIOR SECTION

PLATES 1 to 15

PLATE I



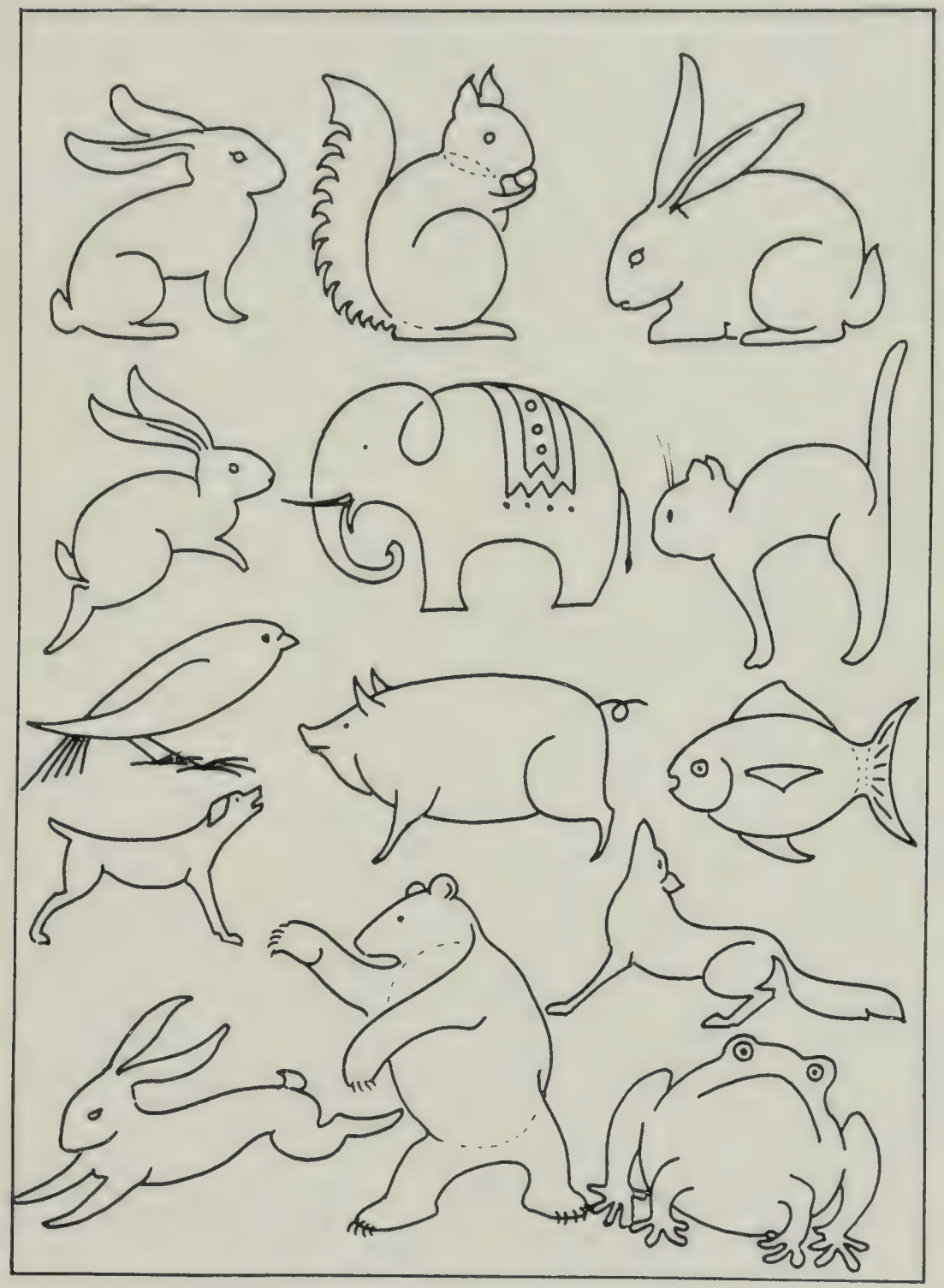
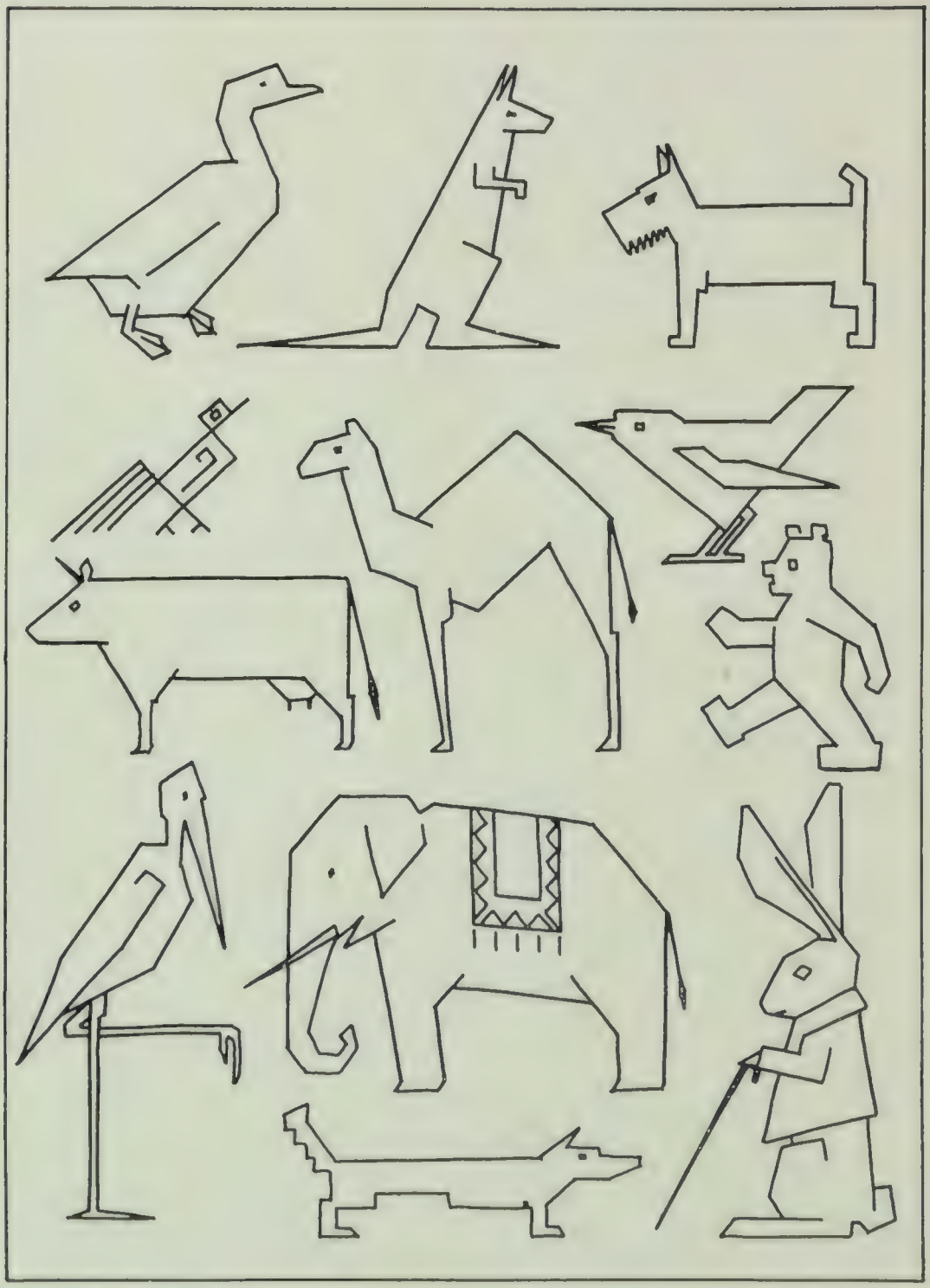


PLATE 3



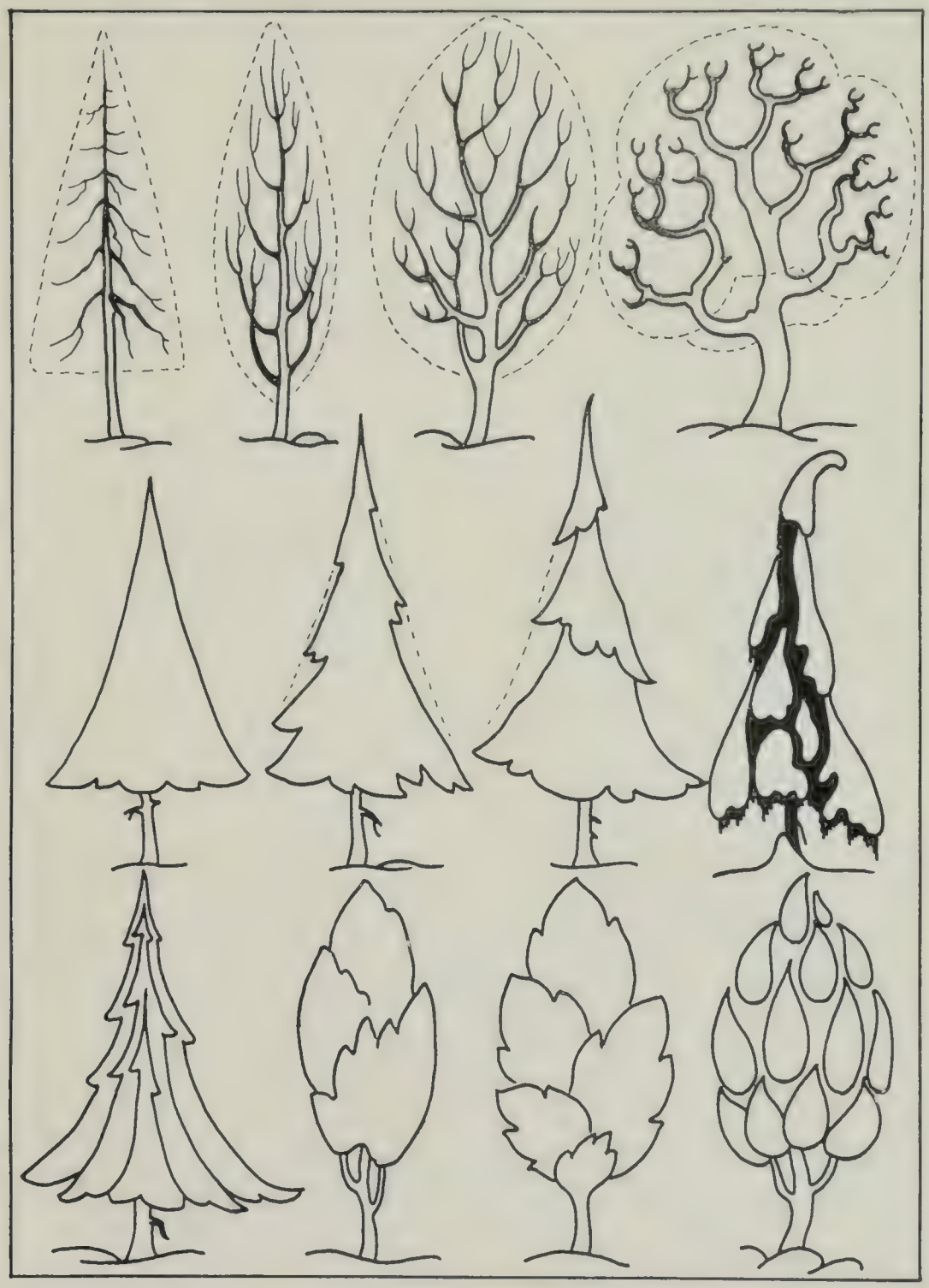
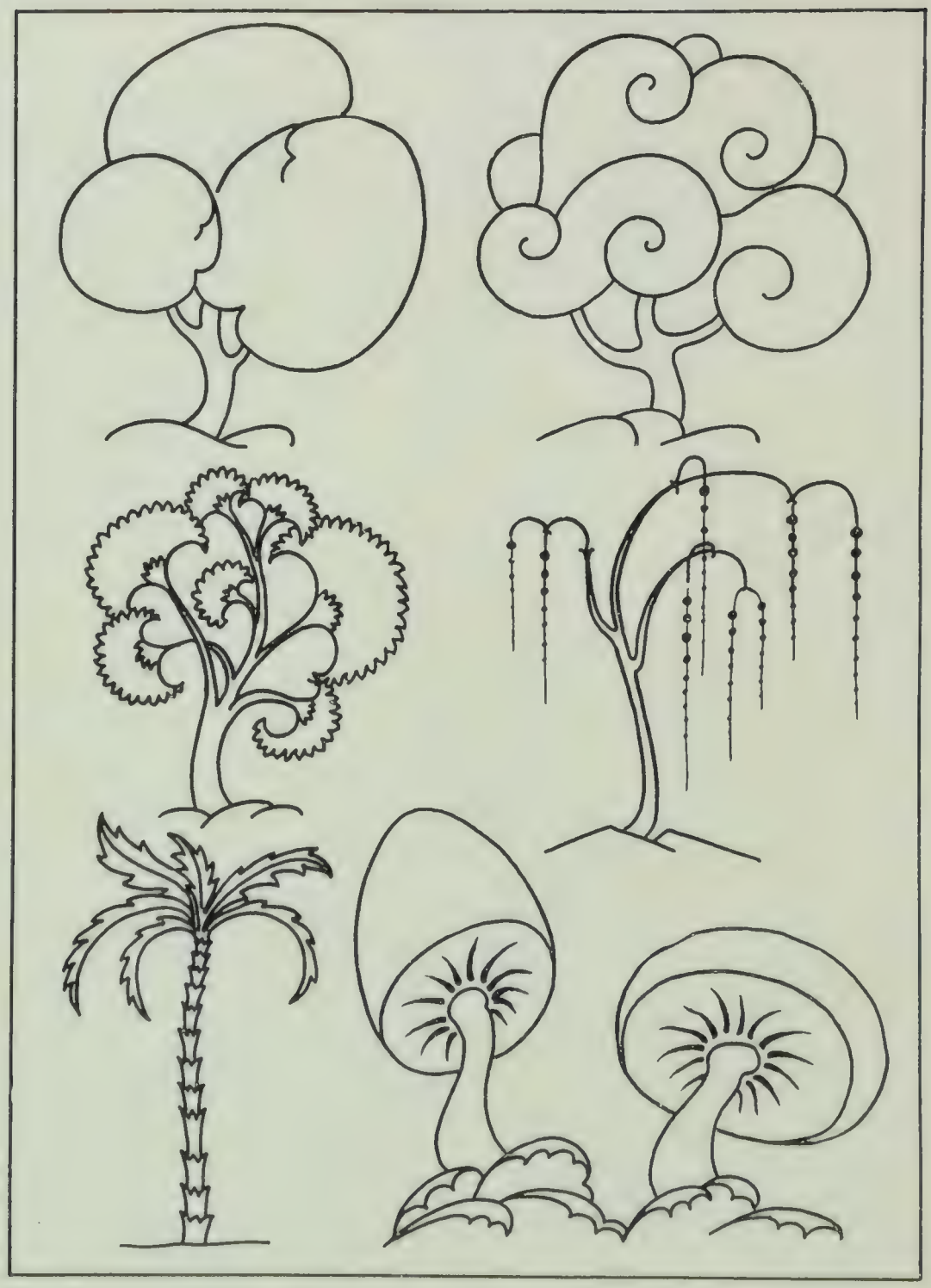


PLATE 5



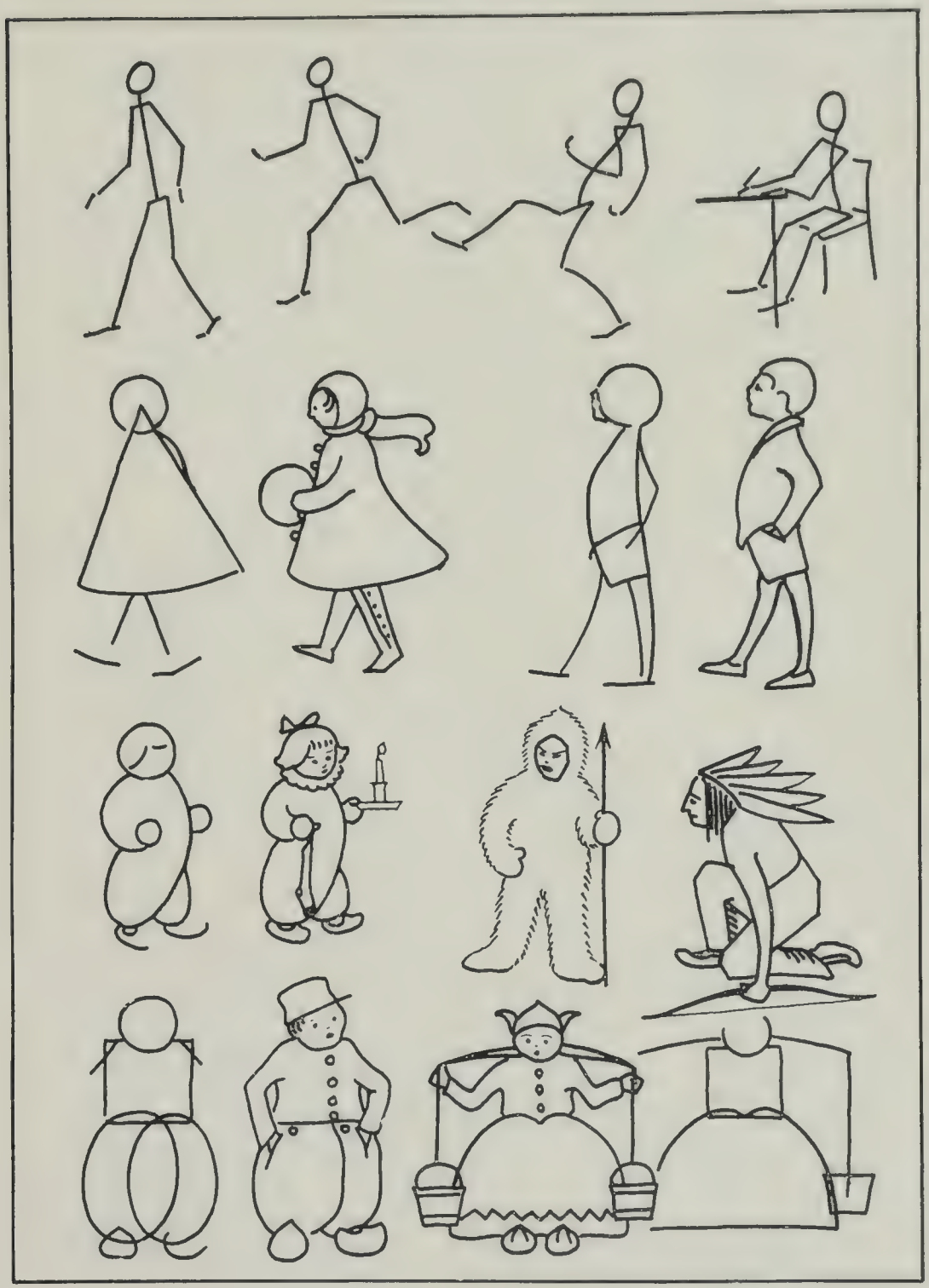


PLATE 7

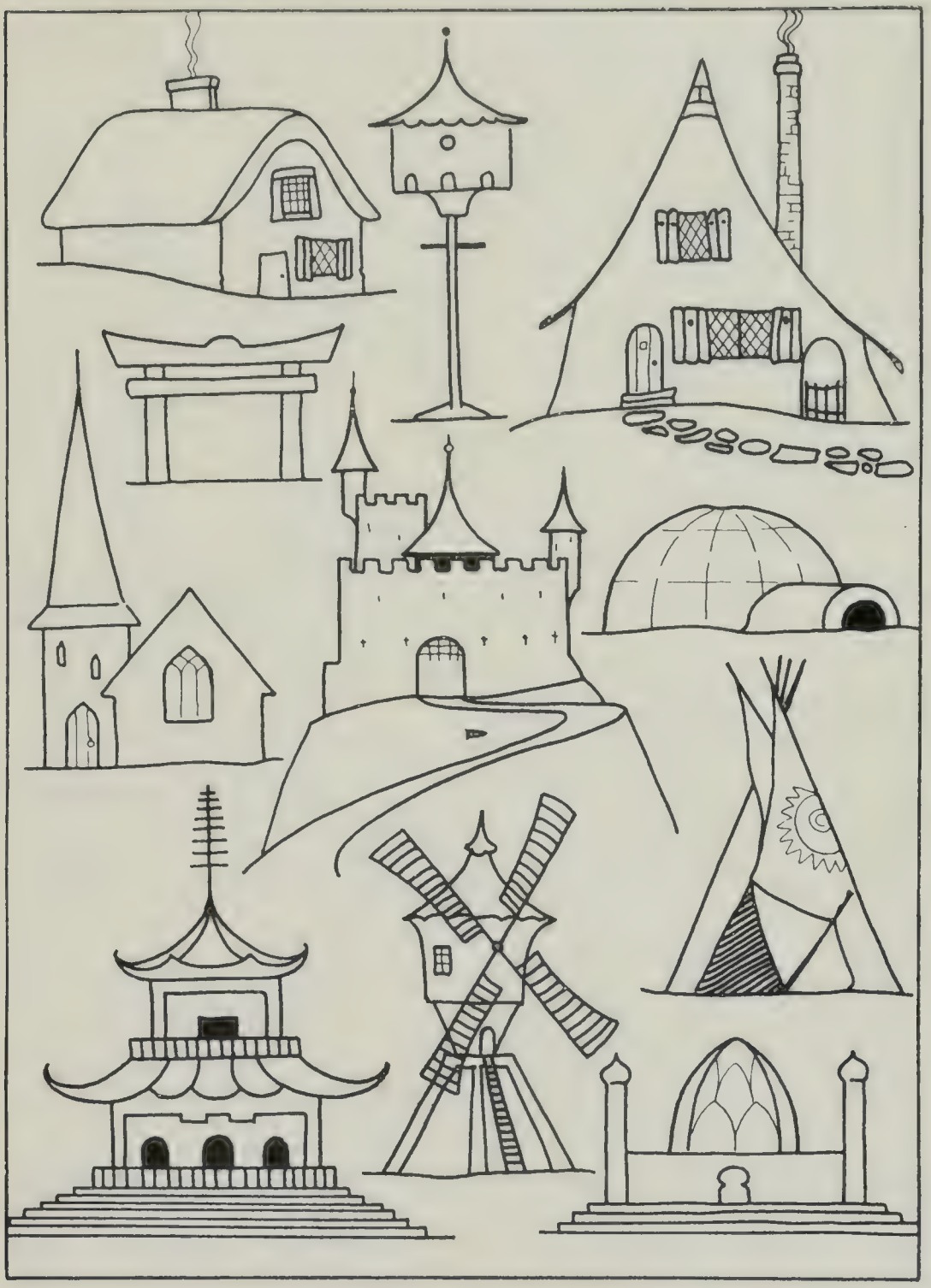
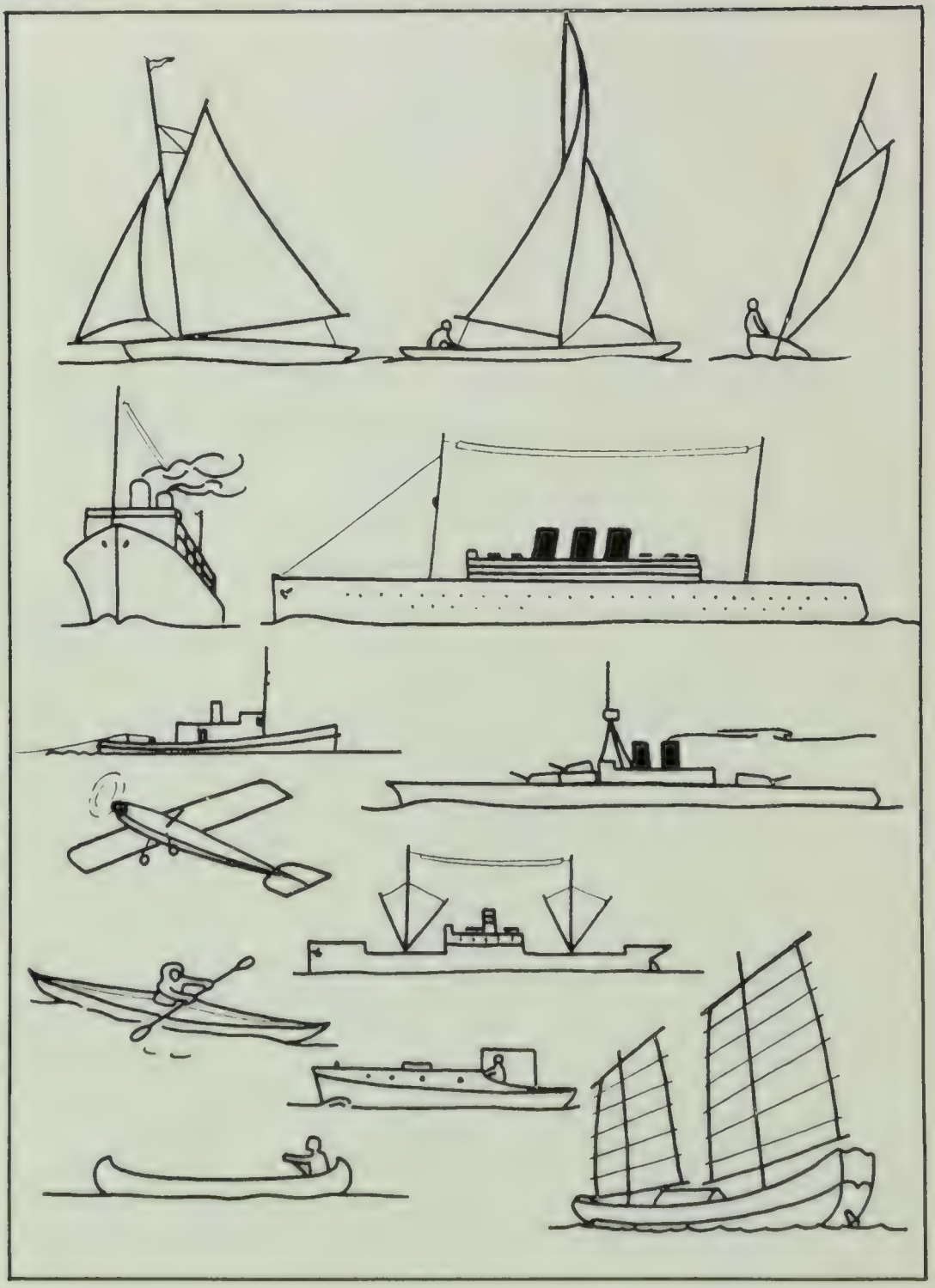


PLATE 9



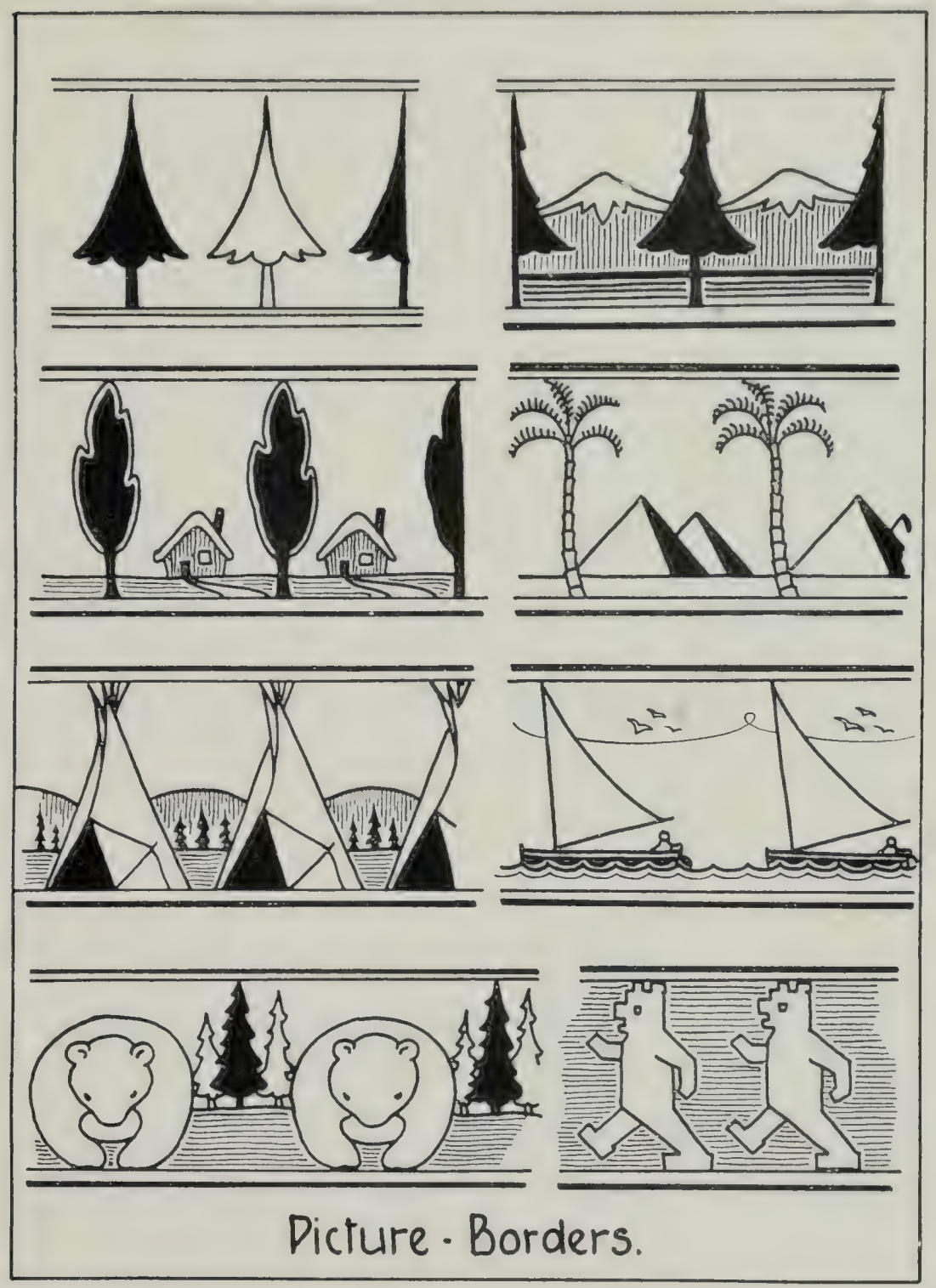

Picture - Borders.

PLATE II

Suggestions for Wash Drawings

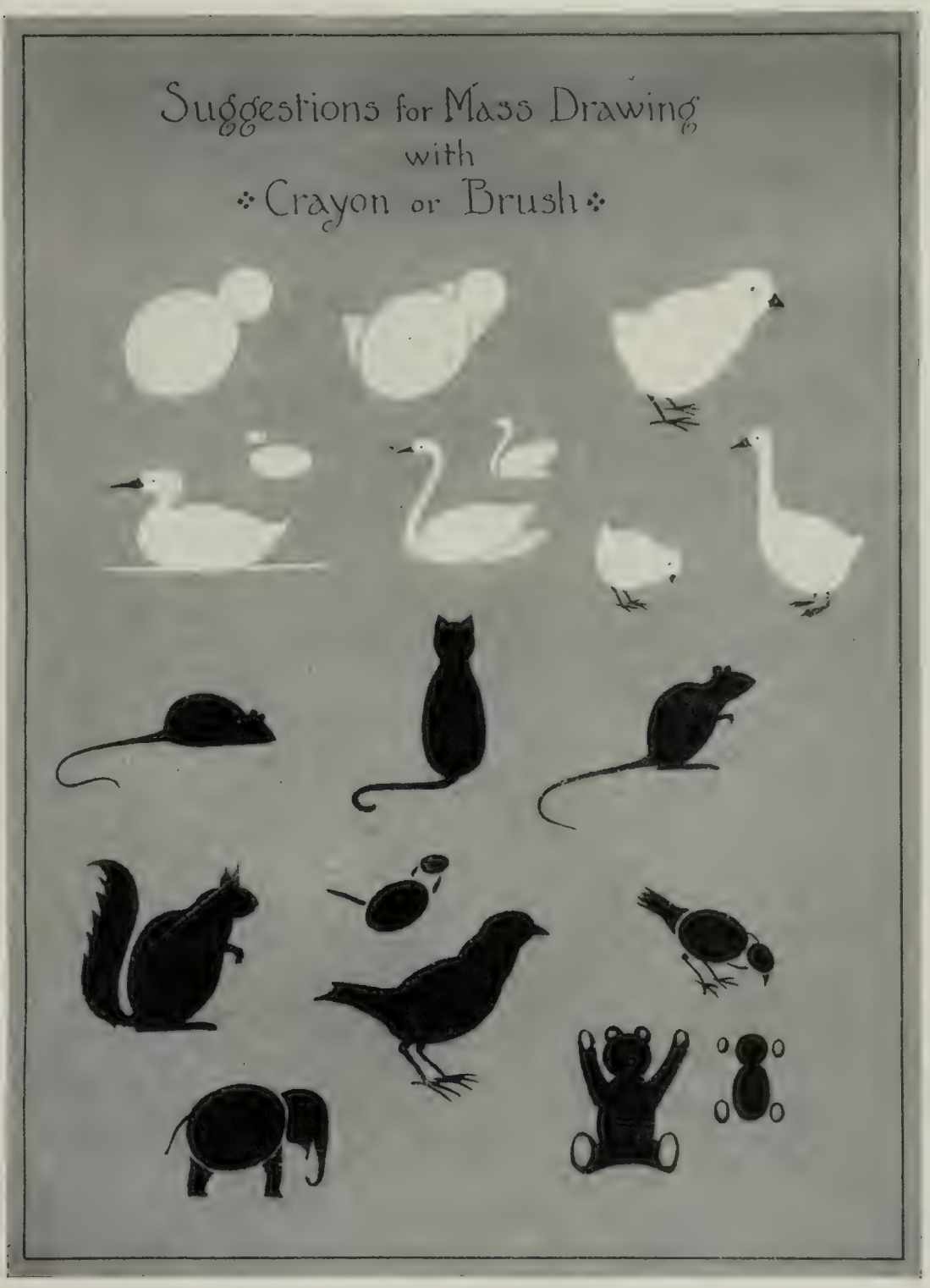
Spring.

Summer.

Autumn.

Winter.

Suggestions for Wash Drawings


Suggestions for Mass Drawing
with
Crayon or Brush

Suggestions for Mass Drawing
with
Crayon or Brush

II. DRAWING SECTION

VISUAL REPRESENTATION

THE teaching of drawing has long since passed the stage when it needed an apology or argument to justify itself. Where there is any misunderstanding with regard to its inclusion in the curriculum this is generally due to a confusion of the terms Drawing and Art.

Art has been defined in many ways, and no finality has been reached. It would appear to be something personal and elusive.

Drawing, on the other hand, is definite. It has been defined as the expression of form in any way upon a plain surface. More, it is a reasoned process, and so comes under the heading of science rather than art.

Every teacher must realize this if successful teaching is to be accomplished. It is my firm conviction, from years of teaching experience, that any pupil of normal intelligence can be taught to draw, and also that, contrary to the belief of many teachers, the best work will be obtained from those pupils who are doing the best work in other subjects.

Naturally all pupils will not do equally well in all branches of drawing. When, therefore, a pupil does not progress in a certain type of work, the inference should not be that the pupil is unable to draw. It is possible that the child may be interested in another direction.

Vary the range of the work, therefore, both in subject matter and in methods of treatment.

It is my purpose here to endeavour to explain the simple reasoning process of drawing, to suggest some methods of teaching, and to show how the range of interest may be widened. Before proceeding to this, it will be in order to state the scope of the work, its aims, and the reasons for the line of development chosen.

The work outlined in this section deals with exact representation.

Primitive drawing was all in outline. Young children naturally adopt this method and invariably draw in outline.

This seems at first somewhat strange in view of the fact that we see the objects around us as masses or shapes of tone and colour, and not in line. Children, however, in early years rely to a great extent upon the sense of touch, and draw from knowledge gained by this sense as much as, or more than, by the eye. This is thought to account for the use of the boundary-line or outline drawing which is naturally used at this period.

This type of drawing is diagrammatic, and is used by the young child as a means of expression long before it learns to write. It has been found from experience that about the age of ten the child begins to discard this type of drawing for more exact representation. When this stage of development is reached it is time to begin the grammar of drawing.

A review of the progress of drawing from the primitive shows line as the basis. Then comes the addition of colour and tone, at first with little attempt at imitation of the natural, but gradually assuming the gradations and strength of the natural appearance.

This accordingly appears to be the logical development of our course. I would suggest, however, that the use of colour be not delayed too long, as it is a powerful factor of interest in the work of the schoolroom.

It would be well at all times, when considering methods of classroom procedure, to bear in mind a few of the most obvious aims in teaching this branch of drawing, which might be termed the handmaid to the other branch—Design.

AIMS

Its aims are briefly these :

1. The development of Muscular Control.
2. The training of the power of Observation of form and colour.
3. The training of the power of Memory for form and colour.
4. The training of the power of Representation.

(1) Muscular control is perhaps the easiest factor to deal with, being very largely dependent upon practice. Conscious muscular control of the hand is of itself very valuable in many walks of life, and is well worth gaining.

(2) The value of observation in other studies such as science, nature study, etc., is obvious, to say nothing of its importance in many professions and trades.

(3) To any teacher it must be evident how closely visual or picture memory is related to word or story memory, in the teaching of history, geography, and literature. It also plays an important part as the connecting link between observation and representation, and

should be practised regularly. A well-stored memory is essential to the student of design. The memorizing of form and colour calls for very close observation.

(4) Drawing should be a means of self-expression. Use as many media as possible—crayon, pencil, pen, brush. It is quite possible that a child unable to use one medium may find facility in another. This diversity of media, together with variation of the subject, will open the way to progress for an increased number of children.

GENERAL DIRECTIONS

The following points concern all grades up to, and including, High School.

Models.—All exercises in representation, from the beginning, *must be drawn from the actual objects.*

Considerable time and trouble will be saved by giving serious thought to the choice and the placing of models. If the pupil is to work an exercise in exact representation, it is essential that the model should be seen clearly. The teacher, when placing models, should view them from the pupil's standpoint to avoid making unfair demands upon the pupil.

Two alternatives present themselves. There must either be a sufficient number of small objects to enable one to be placed within easy range of every pupil, or the objects must be large and bold in form. A small number of models limits the choice of position. Next, the model should be shown to the best advantage by using suitable backgrounds. Dark objects can be made to stand out clearly by use of a light background and *vice versa.* If stands are available for models, backgrounds can be

provided easily by tacking three-ply wood or cardboard on two edges of the stand, as shown in the sketch (Plate 16). Papers or other material of various colours and tones to suit any model can be affixed to the wooden backs.

Nature specimens, when large enough, can be placed on these stands. Smaller specimens can be mounted on a slip of paper as shown and stood vertically in front of the pupil, instead of lying promiscuously on the desks. This will not only make for better observation but will also be a great help in deciding the direction of lines. Choose objects with some new interest—avoid objects which are on view in the classroom at all times.

THE DRAWING PROCESS

As line-drawing is to be our basis for teaching we must first consider the various kinds of lines which will constitute our graphic vocabulary, together with the difficulties involved in representing them.

The first consideration will be that of straight and curved lines. Let us deal first with straight lines. The straight line drawn without the use of a ruler is not easy for the beginner to master, but it has the virtue that any variation from the straight is readily noticeable—an essential condition before correction can be made. The drawing of a curve is in itself no more difficult than drawing a straight line, but variation from any other given curve is much more difficult to detect. Hence the difficulty of making a correction.

This, then, brings us to the first point. Teach straight lines first, and always look for straight lines first when drawing any complex object.

The drawing of the curve will be approached by first studying the directions of straight lines.

The only directions arbitrarily fixed upon the paper are the vertical and the horizontal—parallel to the sides and to the top and bottom respectively. These are the known positions by which we are able to locate the directions of all other lines—oblique and curved.

Consider a curve as a series of inclinations from the vertical or horizontal.

This brings us to the next important point—aim to cultivate a *sense* of the vertical and the horizontal. When planning a drawing always look first for vertical and horizontal lines, or any suggestion of them, in the salient points of the object to be represented.

Once these are mastered all other lines must, in relation to them, incline right or left of the vertical, or above or below the horizontal. Guaging the exact variation of slant becomes a matter of practice in the comparison of lines. This point is very important to the teacher, especially in the early stages where it is essential to form the habit of constant comparison of one line with another. It is a good rule never to consider one line of any drawing by itself, but always in relation to its surroundings.

Exercises for beginners should be confined to representing either flat objects which can be expressed in two dimensions—height and width—or to spherical and cylindrical objects placed about level with the eye so as to avoid showing the third dimension. The difference between these exercises and those following, which deal with three dimensions, or perspective, is one of degree. The difficulty arises from having to translate three dimensions—height, width, and depth—into a flat sur-

face of two dimensions. Touch must now be discarded entirely for vision. Shapes must be drawn from appearance, and not from previous knowledge of what they actually are—circular forms, for example, may appear elliptical, more round or narrow according to the point of view. This variation can only be decided by the eye. Horizontal lines, again, may appear to slant up or down —this can only be determined by sensing the horizontal and the vertical, and making visual comparison with these known directions.

These facts are important to the teacher because they point a line of action. Teaching must aim to produce keen observation, with clear mental pictures formed, before the pupil sets about representation. This can be accomplished by frequent memory exercises and by constant comparison of lines, angles, and enclosed forms.

GENERAL METHODS IN TEACHING

Use of Memory Drawing

Memory drawing should be used frequently. Its value can hardly be over-estimated, as memory is really the link between the eye and the hand. It may be used in many ways, some of which are here set out. In the elementary stages memory drawing periods require only a short time—from four to six minutes will often suffice.

(1) As a preliminary to the regular drawing lesson. Place models. Draw pupils' attention to salient features of proportion and form.

Have them close eyes or look away from the model, trying to picture it in their minds. Repeat this several times for two minutes. Cover up model and have pupils draw for two minutes. Uncover models, and make comparisons with drawings. Corrections can then be made if required, or the final drawing may be proceeded with.

(2) Allowing any convenient interval of time to elapse after the drawing lesson, have the pupils draw their last exercise from memory in a few minutes. Place memory drawings and the originals side by side, and compare.

(3) This is a variation on (1). Pass suitable objects or drawings around the room. Allow one or two minutes for observation. Draw for two or three minutes, and then compare with originals.

(4) Ask pupils to observe some common object outside the classroom. Have drawings made in the room, and then put the drawings up and compare, noting those that have expressed most completely the chosen object. Note also where observation has been weak.

Regular practice such as here outlined will, in a few weeks, show marked results in the development of the powers of observation, with consequent power and speed of expression.

Direction of Observation by Comparison

For elementary pupils drawing is largely a matter of trial and error. The memory work outlined will reduce the percentage of error considerably.

Another way to reduce it is by use of the blackboard before the pupils put pencil to paper. Make drawings of lines for comparing direction and of shapes for proportion, etc. Have the pupils compare these with the original, and note variations. Show from these how trial shapes are used to get more accurate ones by making the changes before erasing the errors.

Children can, as a rule, make better comparisons from drawings on the blackboard than from those on their own papers, partly owing to the greater distance, and partly because the object and the distant drawing can be seen almost simultaneously. Thus they are able to make a direct comparison. When comparing a drawing close at hand with a distant object they are dependent upon a mental picture for the comparison. If the mental picture is not clear the comparison will be weak. Remedy this in two ways. First, place the drawing alongside of the object, thus allowing a direct comparison. Secondly, have the pupils hold their drawing at arm's length, *in line* with the object, and close one eye. Here also a direct comparison is obtained, but is not so easy to accomplish as in the first case. As the memory is trained to retain knowledge of form this direct comparison will be used less frequently.

Another method of making comparisons for determining the slant of lines or the relative position of points, is by holding the pencil at arm's length in a horizontal or vertical position, in front of the model. One eye must,

of course, be closed. The pencil must always be held at right angles to the line of vision. Do not use the pencil in any but the horizontal and vertical positions. (Plate 26.)

Another device to assist those pupils who find difficulty in translating the solid form into the flat surface of the paper, consists of a card with a five-inch square hole in the centre. Across the opening fasten black threads of cotton at regular intervals of about one inch, in both directions, forming a trellis of small squares. (Plate 25, fig. 3.)

If this is held between the pupil's eye and the model, one eye being closed, the model can be observed as a flat copy. The regular squares serve as units of measurement, and greatly assist the pupil to realize the representation of the foreshortening of solids on the flat surface of their paper. This device should not be used regularly, but only on occasion to solve special difficulties.

USE OF THE PENCIL

The best way to obtain help from this section will be for the pupil to take a soft pencil, preferably B., and sketch a few lines in various directions, keeping in mind the points mentioned, and noting the movements of fingers, hand, wrist, and arm.

To begin with, impress on the pupils the reason for using a lightly sketched line—namely, the necessity for trial lines and subsequent alterations.

The following points should be observed :

(1) Always fix the position of the line to be drawn before drawing it. Look first, and then put

light points, marking the tentative position of the ends of the required line.

(2) Place the point of the pencil on the starting point, and then look ahead of the pencil to the desired finishing point. The pencil should follow the eye.

(3) Hold the pencil loosely, and so far from the point that it is well out of the vertical position.

(4) Rest the hand upon its side, thus giving free finger and wrist play.

(5) Sit well back from the paper, keeping the head erect.

(6) For drawing vertical lines and oblique lines approaching the vertical, use the movement of the fingers only.

(7) For horizontal lines and oblique lines approaching the horizontal, use the wrist and forearm.

(8) For curves, hold the pencil slightly farther from the point, and follow directions 6 and 7 as the curve approaches either direction.

(9) At all times keep the pencil as nearly as possible at right angles to the direction of the line.

The above directions will need constant drilling in the early stages until the pupils form correct habits. A comfortable easy posture is essential to good drawing.

LIGHT AND SHADE

The purpose of adding shading to a drawing is to produce the illusion of solidity or reality in the drawing of the object represented. Provided that this is kept in mind, and that shading is not resorted to for the purpose of covering up faulty drawing, there is no reason why children should be debarred from the increased pleasure which this addition to their drawing often brings. It is undoubtedly an excellent exercise in observation, and leads to an appreciation of much that is beautiful both in nature and in pictorial art. If satisfactory light and shade work is to be obtained it must be attacked systematically.

Lighting and Choice of Objects

When beginning light and shade the first consideration is to choose models and arrange the lighting so as to make the detection of the various tones as obvious and simple as possible. Objects in which the contrasts of light and dark are sudden will more readily serve this purpose for the beginner than those which show subtle gradation from light to dark. For example, the contrast of the high light from a direct light on a black bottle will be more obvious than the light on an ordinary dull surfaced cylinder, and much more obvious than the contrast on white china. The shading of a white cup and saucer, for example, is a very difficult exercise owing to the subtle gradations of tone, and is seldom successful with elementary grade children. The choice of pure

white models for beginners, as is often advocated, is, I believe, of doubtful value and not necessary.

If all objects to be drawn were monochrome, then, given equal lighting, the white model would probably show the changes due to light and shade more clearly. But, to my mind, the problem in shading is purely one of detecting the relative strength of light and dark (tones) irrespective of whether the darks are caused by shadow or by colour. The separation of these two causes of variation in tone leads only to confusion in the mind of the beginner.

In many classrooms the lighting of models is a difficult problem. The many windows and the limited positions in which models can be placed tend to make for complex shadows. The backgrounds to model stands mentioned in a previous section will be of great assistance here, both for cutting off light from the back of the models, and also for allowing the ready change of backgrounds from light to dark, as may be required, so as to bring out the model in strong contrast. If stands are not available a deep box with two adjacent sides and the lid removed, will make a first-class substitute. (Plate 16.) As the lighting will vary from one side of the room to the other, I would also suggest the advisability of letting the pupils exchange seats in successive exercises, so as to give all pupils in turn the advantage of the best lighting in the room. If there are windows on two sides of the room be sure to screen one set and so make the light as direct as possible.

Having then chosen models and arranged the lighting to give the strongest contrasts of tone possible, thus making the models distinct, the next step is to show the pupils how to look and what to look for.

Observation

The light and shade on most objects can be divided roughly into three parts—*high-light* (the brightest tone), middle or *half-tone*, and *shade* (the darkest tone).

Differences of tone can be more readily distinguished if the eyes are partially closed. This has the effect of making the darks appear darker and the high-lights brighter by blotting out the half-tones. Tones are relative. From the first, therefore, form the habit of *always comparing any one tone with its surroundings*, and avoid viewing it as an isolated section of light or dark. In the same way always view the object in relation to its surroundings—the background.

The different degrees of light and dark are known as the *tone values*, and it is upon the accurate rendering of these values that we depend for the realistic effect of our drawings. When a light occurs next to a dark (as at the edge of a box or book), it will soon be noticed that each accents the other, the light appearing brighter as it approaches the dark, and *vice versa*.

This effect of one tone upon another can be demonstrated by pasting a strip of black paper and a strip of white on a grey card, leaving a strip of grey showing between them. The grey will look appreciably darker on the edge against the white than it is in the centre, and lighter in the edge against the black.

Exercises in strong contrast should be followed by those dealing more with the gradation of tones from light to dark. This presents the most difficult problem of observation, and will often be helped by having the pupils try to make a graded tone from light to dark in a rectangle or other shape, without any reference to a

model. Simply work for a gradual and even change, trying the strokes in different directions to find the best method. Have the change of tone made from left to right, and then from top to bottom, and so on.

Technique

After the difficulty of observation comes the problem of expression. A great help in solving this is the study of as many examples of shaded drawings as can be obtained. It is possible now to obtain good reproductions of pencil drawings by the finest draughtsmen. The study of these will show the use made of the pencil and also will often help the observation by showing effects which pupils had previously missed.

Materials

For shading with pencil or pen, especially the latter, a fairly good quality of paper is required. On very soft paper it will be difficult to get strong tones with pencil. For pen-work a very smooth surface is best. Pencils should range from H.B. for fine work, to B., and 2B. for bolder work with strong tones.

Carbon pencils and white pencil, or chalk, on grey paper are very effective, and suitable for older pupils of high school age.

For pen-work ordinary ball-pointed pens on smooth drawing board or on paper, will be found suitable.

Method

A line method of shading will be found most suitable for ordinary school work. For pen-work it is essential.

The direction of the lines is immaterial to the tone effect. Direction of line helps to suggest contours, but it is the tone value that makes for accurate rendering.

In drawings of a decorative character, where full light and shade is not required, the direction of the lines plays an important part. This is true also of pen-drawing. Texture of surface is affected by the type of line and its direction. Long lines in one direction give the effect of smoothness. Short lines in different directions make for roughness. If lines are not desired in the final drawing it would be well, when darkening a tone, to alter, very slightly, the direction of the second set of lines.

The illustrations (Plates 31, 35) will explain these points. One kind of line to be avoided is that made back and forth—scribble. The turn of the line makes objectionable spots in the shading which are extremely difficult to get rid of. In early work it is well to avoid rubbing with the finger or blotting paper—a good line method will give much more vigour and character to a drawing. The technique of light and shade will give scope for individuality of treatment, but in the early stages it will be well for the teacher to give one method, and have pupils master this before experimenting with different styles.

METHODS OF GRAPHIC EXPRESSION

Many different media may be employed in drawing, even in elementary schools, such as pencil, crayon, pen, water-colour, and tempera or poster colour, as it is often called. Each of these in turn can be used in different ways.

Then again, apart from the medium used, there comes into consideration the question of how far towards a *completely realistic* drawing the draughtsman wishes to take his work. For example, a good line drawing with no trace of colour or light and shade may be more expressive and satisfying than one in full light and shade.

Study of the illustrations will teach more about different means of expression than any description.

The point to be remembered is that by varying the means of expression it is possible to arouse a wider interest. Quite probably children who fail to get on or to be interested in one medium, may do well in another.

The exercises in two and three tones should follow logically the exercises in full light and shade. The second drawing can be re-drawn rapidly from the finished drawing. Then with half-closed eyes map out the shapes of the lights and shadows. Sometimes these can be drawn over the half-tone which has been placed over the whole object first.

In crayon and pastel work a tinted paper should be used—grey, brown, or some neutral tint. Work the colour on in line, and do not rub. Colours can be blended by working strokes of one colour across those of another colour. When the number of crayons to be used is limited, as in most school boxes, colour will have to take second place to tone, as it will be impossible to obtain all the gradations of tone in any one colour. Often it will be necessary to darken a colour by the use of black strokes, applied first, with the colour strokes on top.

TWO-DIMENSIONAL DRAWING

The teacher of this section should read carefully the sections on aims, models, materials, and methods. If these are thoroughly understood there will be few new points to consider here.

First note how the suggested objects are arranged in order of difficulty, following the system laid down in the process of drawing, viz. :

(1) Objects introducing straight lines in horizontal and vertical positions.

(2) Straight lines in oblique positions.

(3) Curves of a regular character.

(4) More difficult curves, such as are found in nature.

As most of the objects are flat it will be possible to hang them in front of the class with a suitable background. As exact representation of form is desired it is well to place more than one object, to enable all the pupils to get a front view. This gives them the actual form of the object without the visual distortions of perspective as when it is seen obliquely. They can then concentrate on the straightforward comparison of height and width and the recognition of vertical, horizontal, and oblique lines. (Plates 17, 18, 19.)

Procedure of Drawing

1. Mark with light points or lines the greatest length of drawing. Do not change this as the drawing progresses.

2. Estimate approximately the corresponding width or the proportion. If an object is divided into two or more parts (as the handle and head of a brush) these divisions should be marked in first, and the width compared with the parts rather than with the whole. Estimates will be general.

3. Through these tentative marks, sketch in as lightly and quickly as possible the lines to enclose the space or form of the object. As soon as the form is enclosed, make comparisons, as set out in the section on General Methods in Teaching.

4. If the first estimate is now found to be incorrect, the width will be increased or decreased as necessary before erasing the first lines. Repeat the whole process again until the result is satisfactory. Time taken at the beginning for careful observation will save time at this stage of the drawing.

5. Draw straight lines before curved lines.

6. Draw vertical and horizontals before inclined lines.

7. When enclosing triangular spaces note the angles enclosed as much as the individual slants of lines. See note on developing a drawing. (Plate 29.)

Pupils of this age will not be able to finish a drawing in light and shade, but many objects will suggest light and dark tones owing to colour and material. Flat tones may be added in pencil, crayon, or water-colour, to embellish the simple outline. See illustrations for styles of finish.

THREE-DIMENSIONAL DRAWING

This section is usually taught in two parts : first the perspective of the circle, leading to objects of a cylindrical nature, and secondly, the perspective of the square, leading to the perspective of rectangular objects.

Keep in mind at this stage that the aim is to train the pupil to observe form. Do not let perspective drawing develop into the memorizing of rules, with the subsequent fitting of drawings to these rules. Rules of perspective may tell one what to expect, and therefore direct one's observation, but they will never tell how to look or what is actually seen. This can be accomplished only by following the general process of drawing, as previously developed, and learning to use the eye systematically.

The Circle and Cylindrical Forms (Plate 20)

The fact that a circle may appear in a different form can be demonstrated in several ways. Plate 20 shows some simple devices, easily made, from which pupils can sketch comparative forms.

(1) Plate 20 (Figs. 1 and 1*a*) shows two circles of wire fastened at XX by elastic bands. Face the circle towards pupils and then revolve the inner circle as in 1*a*. The outer circle remaining in its original position shows at a glance the change of appearance which has taken place. Have pupils sketch a circle. Mark XX, and as the inner circle

is revolved let them sketch in the various changes seen.

(2) Figures 2*a* and 2*b* show a similar device made of two circular discs of card. (Fig. 2*a*.) Score the diameter of the front circle so that it can be folded downwards as shown by the shaded portion. (Fig. 2*b*.) Comparison can be made with the original positions marked by the second disc at X.

(3) Thread three or four discs upon a rod, or suspend them on strings. (Figs. 3 and 4.) Comparison of one with another will draw attention to the change. Have the pupils sketch them. In all these cases the pupil looks at the enclosed space and the curve is more readily corrected in relation to this space.

The tendency, however, is to err on the side of showing a more circular form than is actually seen. This can be corrected only by constant comparison of the drawing with the object. (See page 45.)

When, however, a part of the circle only is seen, as at the base of a cylinder, the tendency is to err in the other direction and make the curve too flat. Again comparison of drawing and object, and also of the straight pencil held at arm's length in front of the model, are the only means of correcting this. No rule will tell how round or how flat to make the lines.

The tendency to these errors seems to come from the persistence of the early idea of drawing the " felt " form, as seen in a child's drawing of a cup, with circular top and straight base. After drawing the different levels

of the horizontal circles as in Fig. 3, have drawings made from various positions in the room compared with one another, to bring out the point that the long axis of the elliptical form always appears level when the circle is horizontal.

Proceed from this stage to the solid, following the same procedure of developing the drawing as outlined on Plates 29, 30. Do not drill too persistently on the type model, as many objects can be used which will teach the same facts in a more interesting manner.

Vary the levels of models from lesson to lesson with a view to keeping pupils alert to notice changes of appearances.

If pupils can be taken out to draw some large cylindrical object near the school, it will add both interest and experience. In town such things as gasometers, elevators, or oil-tanks might serve. In rural districts a silo or an elevated water-tank could be used.

Square and Rectangular Solids in Perspective

The drawing of rectangular objects has probably been much more dominated by the rules of theoretical perspective than the drawing of cylindrical objects. There is all the more need, therefore, to be on guard against the abuse of these rules.

Here are three common rules :

(1) Objects appear smaller as they recede from the eye.

(2) Parallel lines appear to converge as they recede from the eye—this is another phase of the first rule.

(3) Horizontal parallel lines appear to converge to a point on the eye level.

By all means use these rules, and call attention to them in any examples available—pictures, photographs, views from school windows, fences, car tracks, etc., but when the drawing lesson arrives remember that they only point to possibilities, and that the eye must see, and that close comparison of lines and forms must decide what is seen.

Procedure

Devices such as shown in drawing the circle may be applied to the square. Any door opening into the classroom, however, will demonstrate very easily and clearly the three common rules given above. (Plate 25, fig. 1.)

Mark the top corners of the door with chalk. Swing the door slowly. Have pupils hold pencil at arm's length in horizontal position in front of the chalk marks. They will readily see that, as the door moves, one chalk mark rises or falls according to whether the door moves to or away from them. The corner at the hinge remains at the same level, and the slope of the top is easily seen. The same applies to the lower edge of the door, and pupils will see the opposite slopes—the one slanting up, the other down—giving converging lines. This is readily seen because the door is large and the pupils are comparatively near. Often unnecessary difficulty is added in the early stages by using a small cube or box at a comparatively great distance. This is a very important point for the teacher to consider when choosing models. A shallow open box makes a better model at first than a cube, but if the model is small pupils should be quite close to it. Parts of the school building often

make better models than small objects, as the visual distortions brought about by viewing solids at different angles are much more noticeable, owing to the large size and the smaller relative distance of the spectator.

Fig. 2 shows another method of comparing the slant with the horizontal, by means of two strips of cardboard or two rulers.

A square drawn on a circular disc, as used in teaching the cylinder, helps pupils to see the square as a whole rather than as individual lines.

SKETCH MAPS

For sketch maps it is seldom necessary to show minor indentations of the coast line.

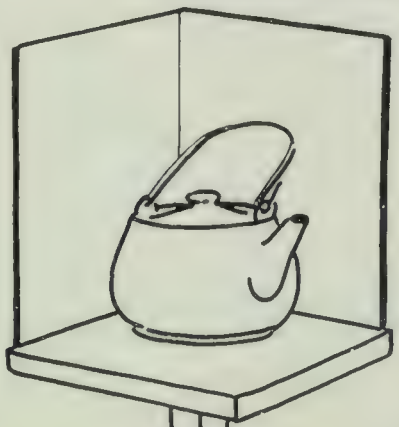
By omitting these it is possible to memorize readily the essential form and proportions of a continent or country.

This visual memorizing of form is easier and more lasting than the memorizing of the complicated mathematical plans and measurements which are so often seen in the reproduction of sketch maps.

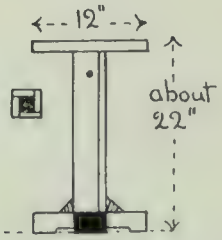
DRAWING SECTION

PLATES 16 to 38

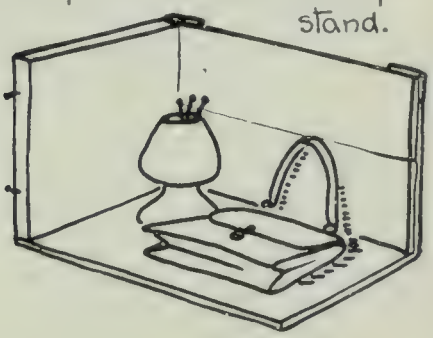
Simple equipment to facilitate the placing of models and nature specimens in the classroom.

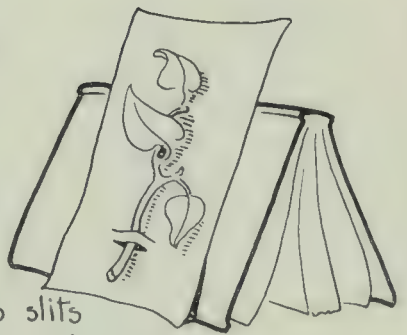


This could be made by any senior grade boy in the manual training shop.

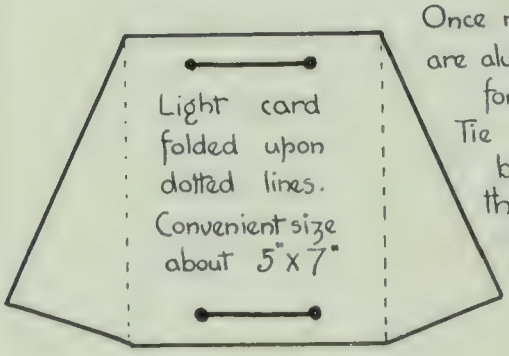


Part of box as substitute for stand.

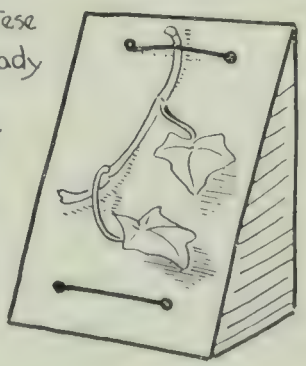




Tear two slits in a sheet of paper. Insert stem and rest against a book.



Once made these are always ready for use. Tie rubber bands through holes.



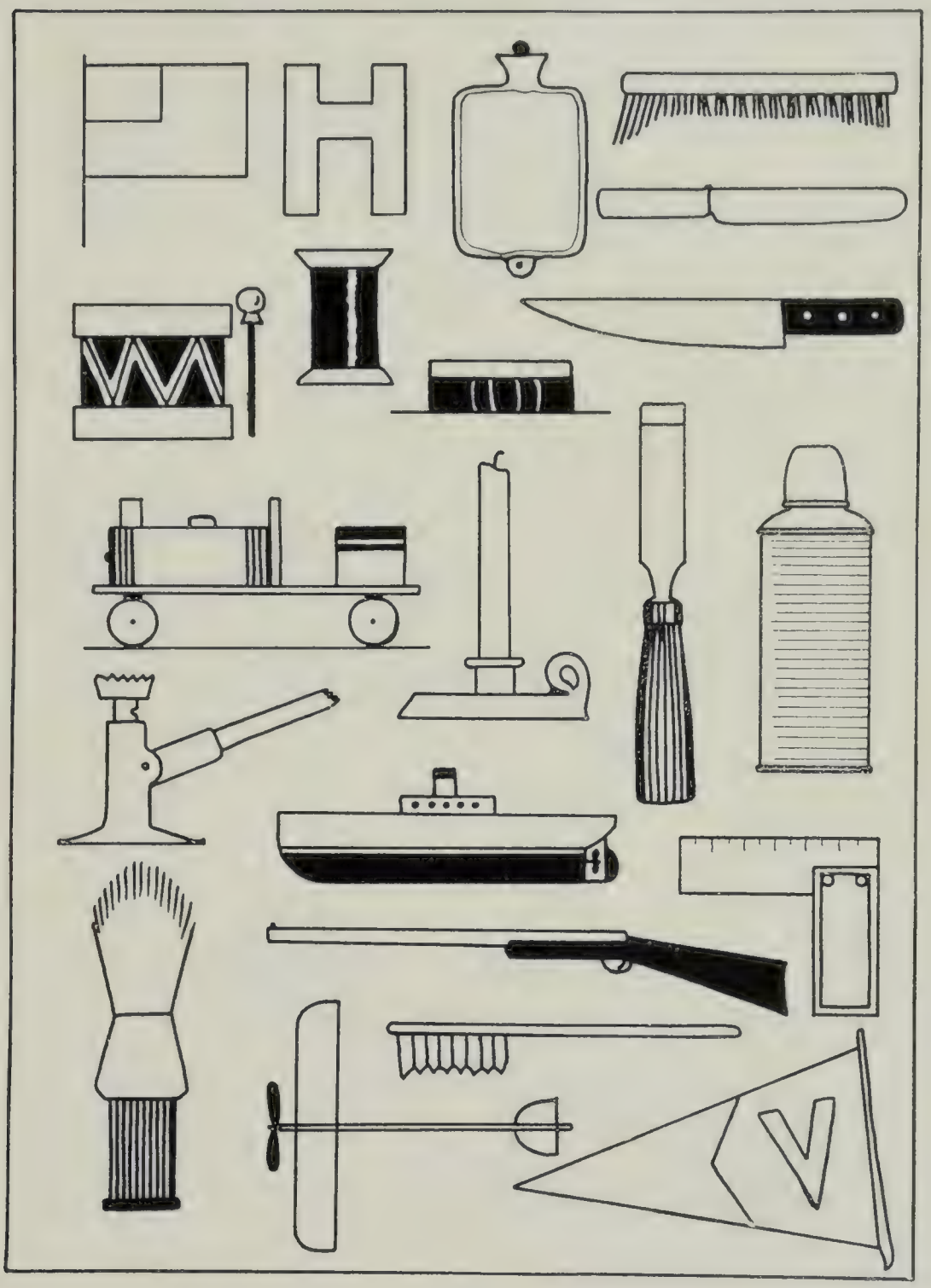
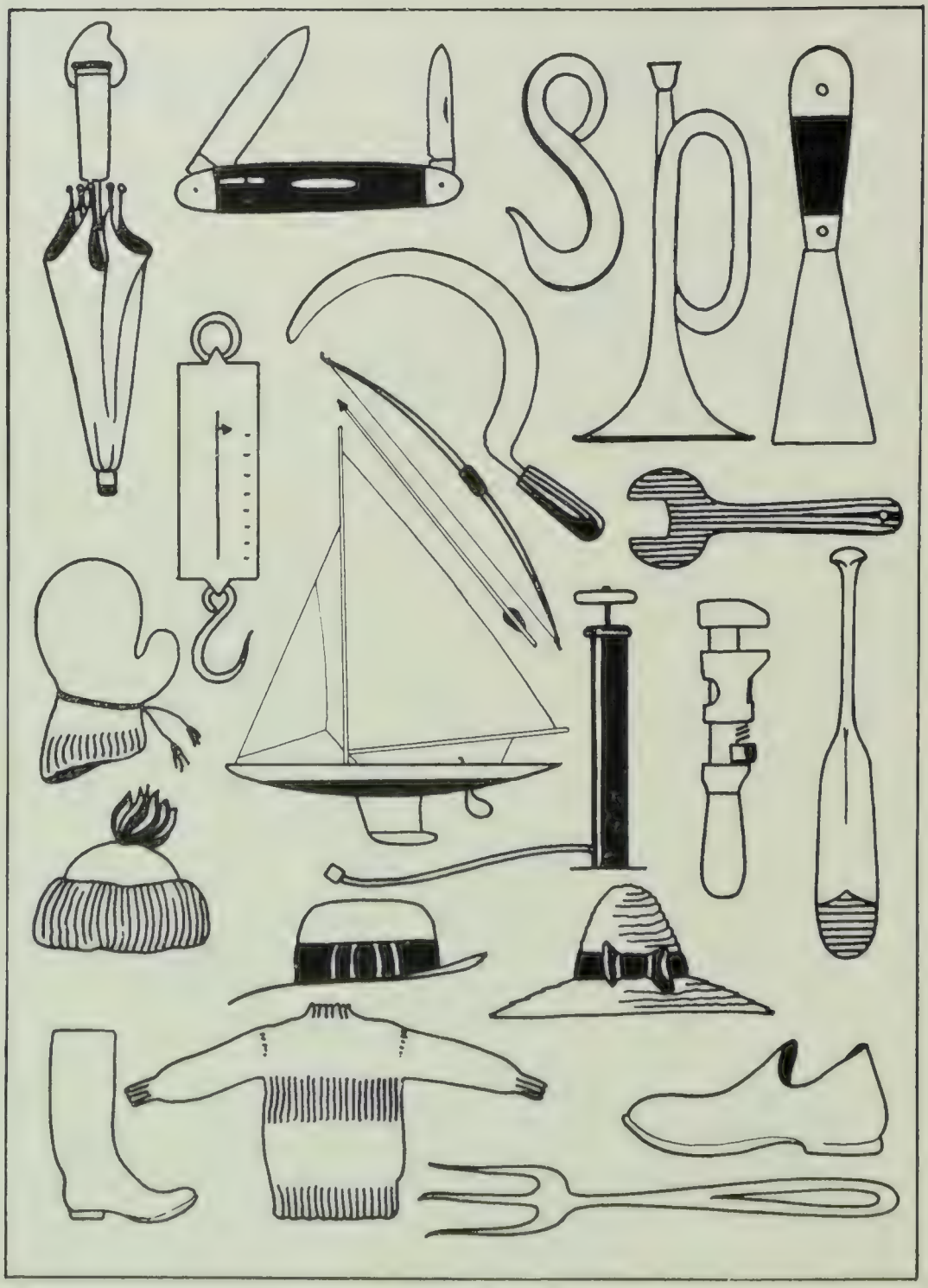


PLATE 18



Devices for comparison of forms taken by the circle in various positions.

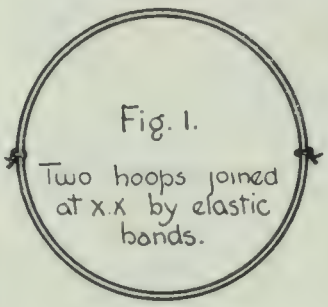
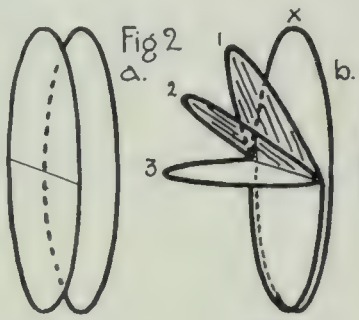
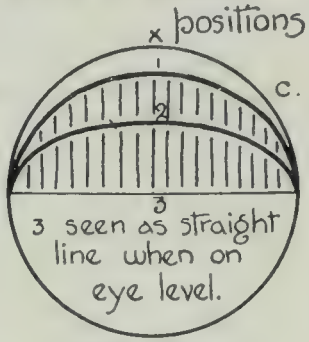


Fig. 1.

Two hoops joined at x.x by elastic bands.



Two discs. Place together. Side view.



3 seen as straight line when on eye level.

Front view as seen by pupil.

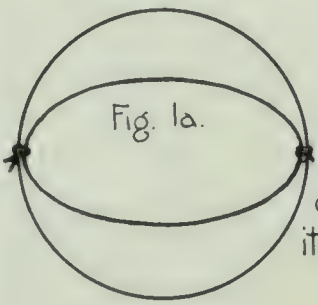


Fig. 1a.

1a. shows inner ring revolved, so comparing it with its actual shape.

Shaded sections show appearance of inclined semi-circle in front of its actual shape as marked by the second disc X.

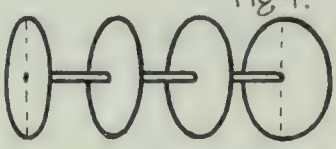
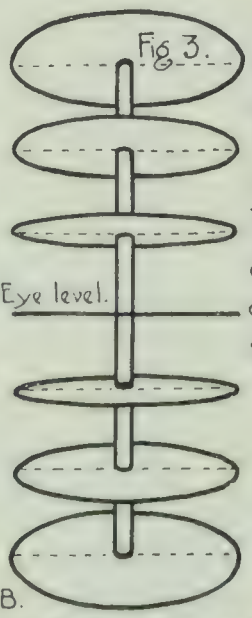


Fig 4. Rod in horizontal position at eye level.



Discs of card attached to broom handle Discs in horizontal plane. By comparison different forms of ellipses can be seen readily.

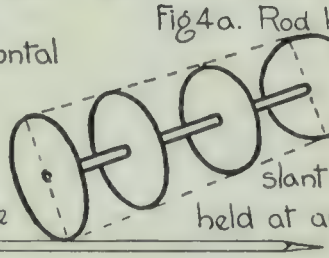
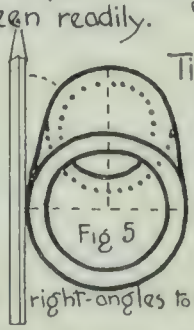
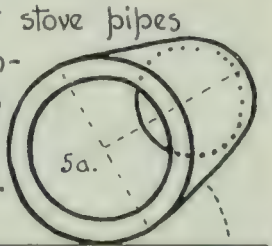


Fig 4a. Rod horizontal but below eye level. Determine slant with pencil held at arms length.



Tile pipes or short stove pipes show the relation-ship of the ends better than the solid type model.



N.B. Axis of ellipses always at right-angles to rod or main axis.

Observation of details. Similarity of construction in common objects and nature forms.

Fig. 1.

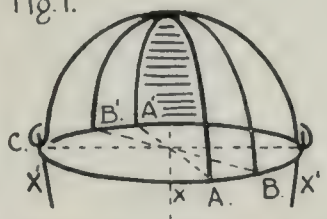
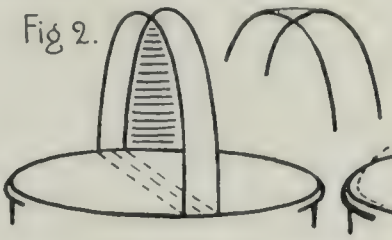
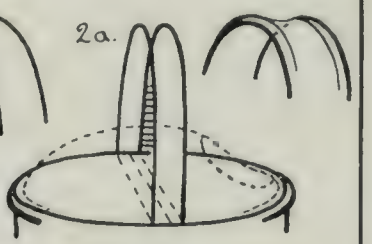


Fig 2.



2a.



1. Observe position of handle ends AA', BB', in relation to centre X, and sides X'. Note that ends are opposite. Lines AA', BB' must pass through centre of ellipse.

2 When handle is flat, draw both edges complete and erase the hidden portion shown by dotted line. This ensures the proper continuity of the two portions of the far edge.

Note the same construction as in Fig. 2. when drawing leaves from nature. Curved leaves can then be drawn as readily as flat ones and are more interesting. (Fig. 3)

Fig. 3.

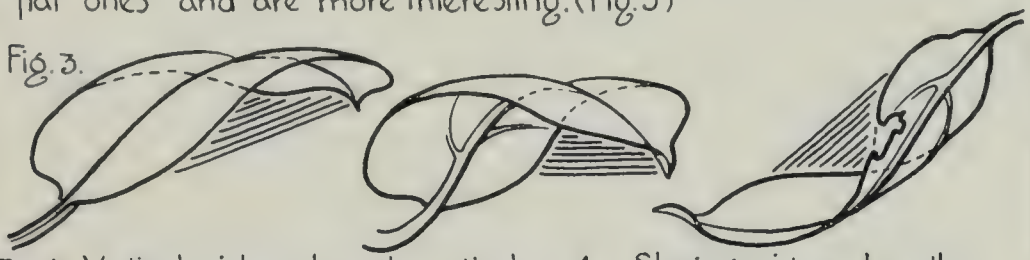
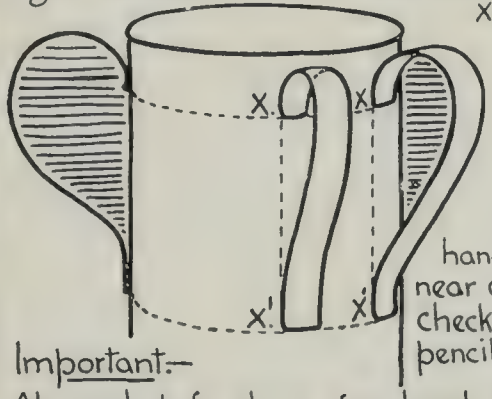
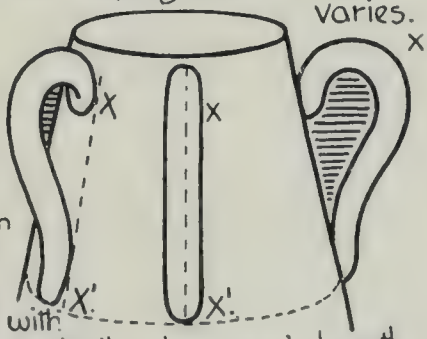


Fig. 4. Vertical sides – handle vertical. X, X'.



4a. Sloping sides – handle varies. X, X'.



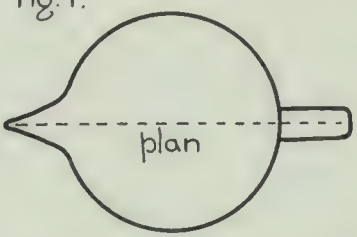
When handle is near centre check slant with pencil held vertically at arm's length.

Important:–

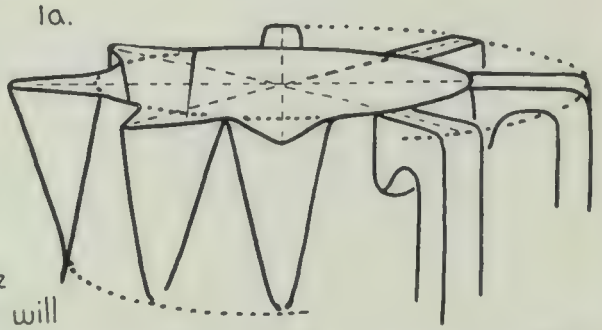
Always look for shape of enclosed spaces, shown by shaded portions.

Observation and checking of details. (continued)

Fig. 1.

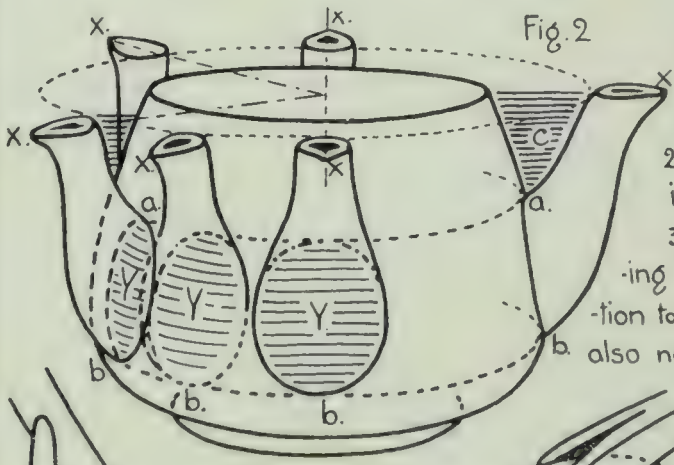


1a.



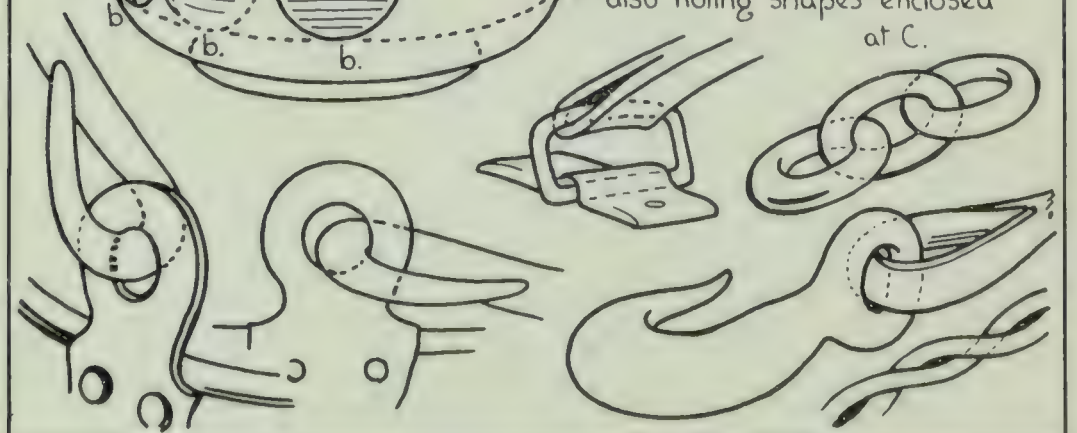
When a spout is opposite the handle in plan, Fig.1, it will always appear opposite in perspective, 1a. The knowledge of this construction however will not give the position of spout or handle from any particular view. The position must be obtained by ob-servation of its relative position with regard to sides and centre. Check this observation by your knowledge of construction.

Fig. 2

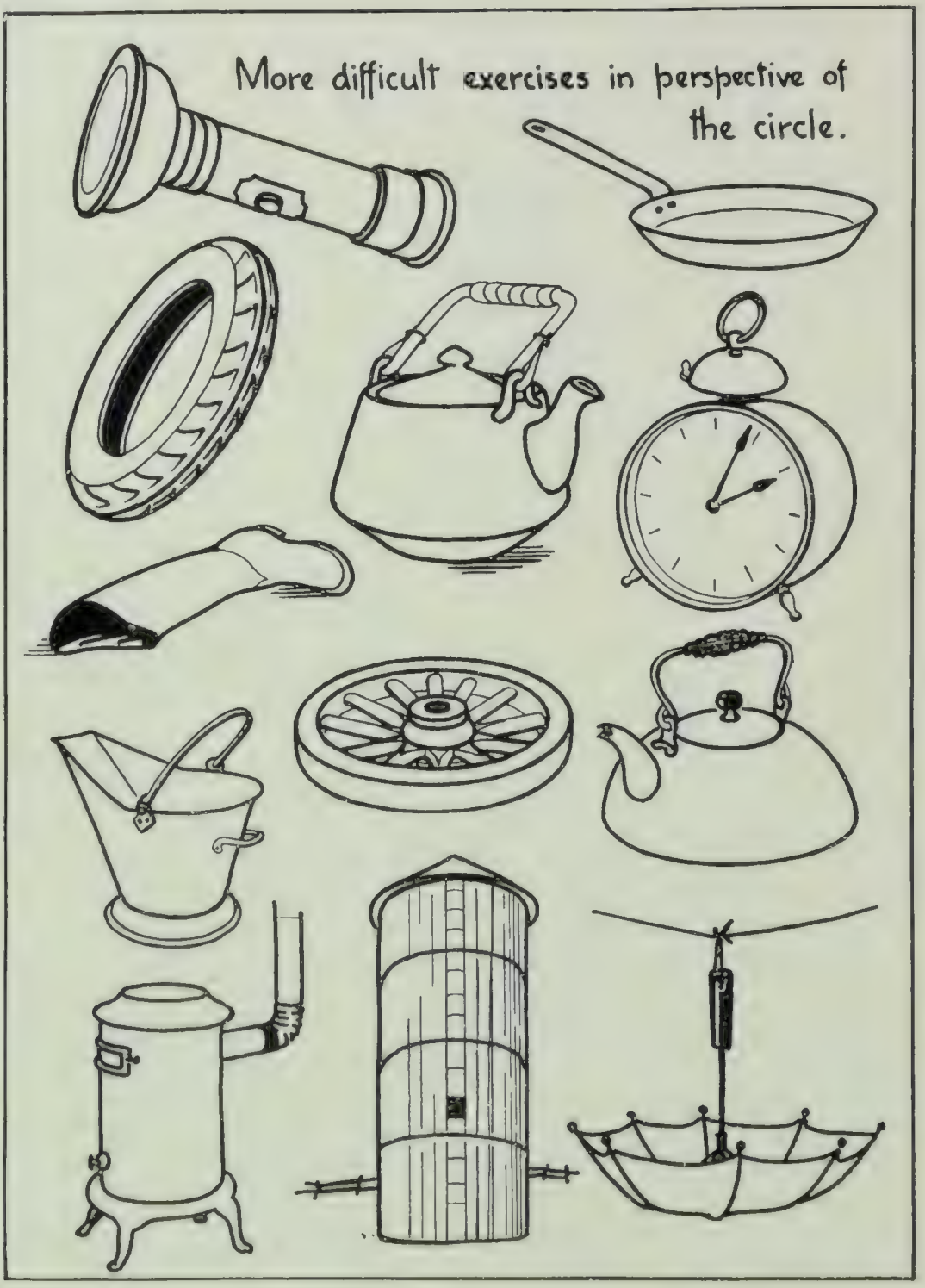


Method.—

1. Mark height a, b, in re-lation to height of side.
2. Mark position of top, X, in relation to top of vessel.
3. Draw sides of spout join-ing these points, watching rela-tion to shape of opening Y, and also noting shapes enclosed at C.

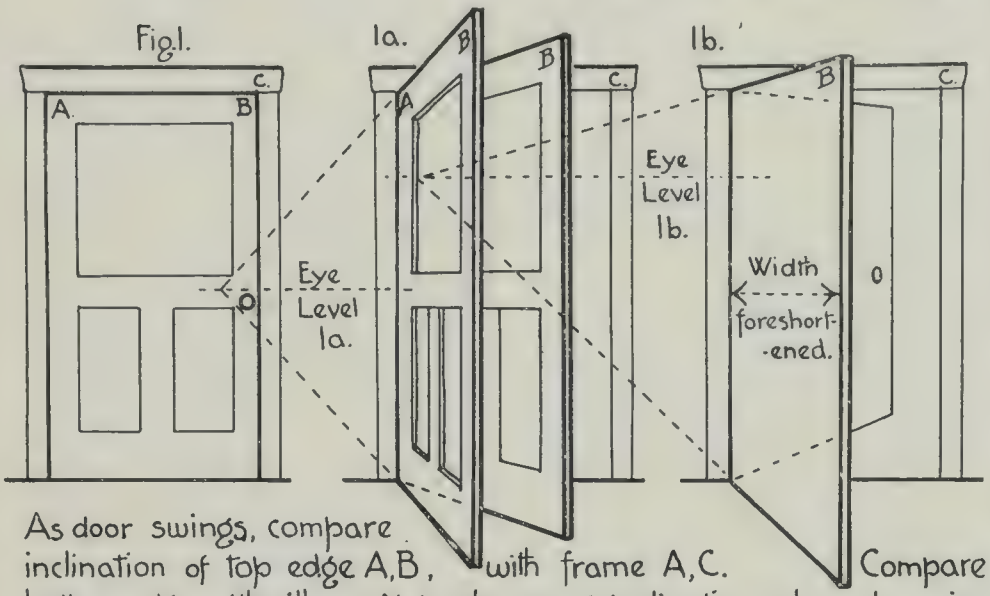


SALT
AINT


More difficult exercises in perspective of the circle.

Perspective.

Methods of showing convergence of lines and foreshortening.



As door swings, compare inclination of top edge A,B, with frame A,C. Compare bottom edge with sill. Note change of inclination when door is stationary and pupil rises from sitting position, 1a, to standing, 1b. Have pupils note change of inclination when walking towards the door from the back of room. Make rapid sketches of door at various angles and from different distances. Lastly judge inclination of various objects in the room such as tops of windows, table, chairs, desks etc. by means of pencil held at arm's length, or by the devices shown below.

Two strips of card. Keep (a) level Pivot (b) until it coincides with the model.

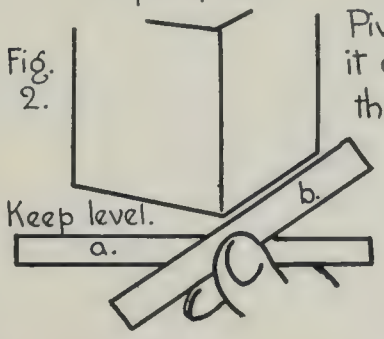


Fig. 2.

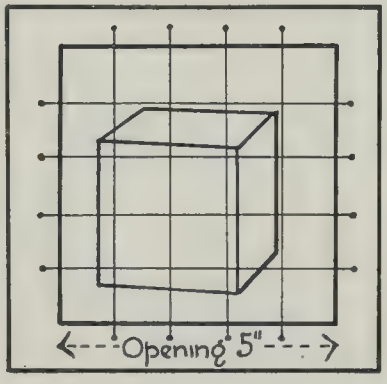


Fig. 3. Card with trellis of thread.

How to use the pencil as an aid to observation.

1. Easy position – Vertical.

(a). To check slant of lines approaching the vertical.

(b). To check positions right or left of any given starting line.

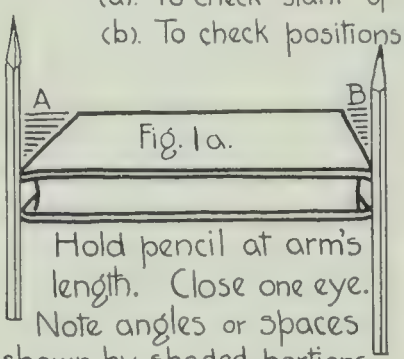


Fig. 1a.

Hold pencil at arm's length. Close one eye. Note angles or spaces shown by shaded portions A, B and compare them carefully.

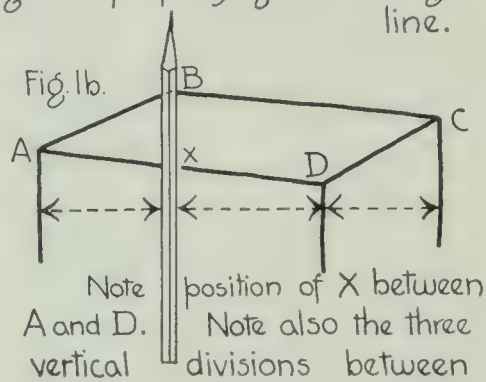


Fig. 1b.

Note position of X between A and D. Note also the three vertical divisions between A, X, D and C. It is easier to divide the width A, C into 3 than into 2 parts.

2. Difficult position.– Horizontal.

Hold pencil at arm's length and at right angles to line of vision. Close one eye. Note spaces shown by shaded portions and compare them carefully.

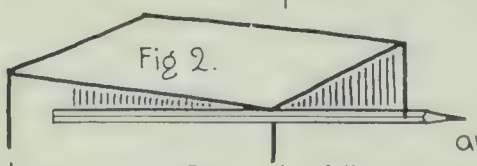


Fig 2.

Important:– Study the following diagrams as the above check is absolutely useless if the pencil is held incorrectly.

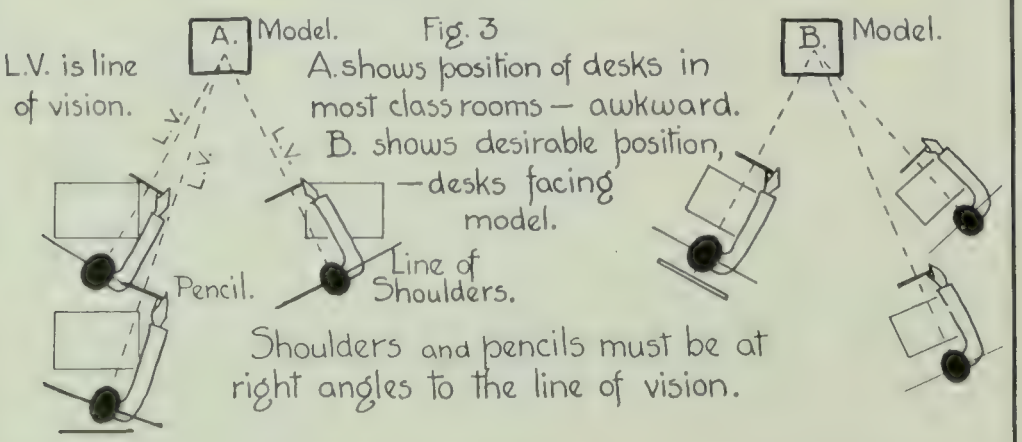
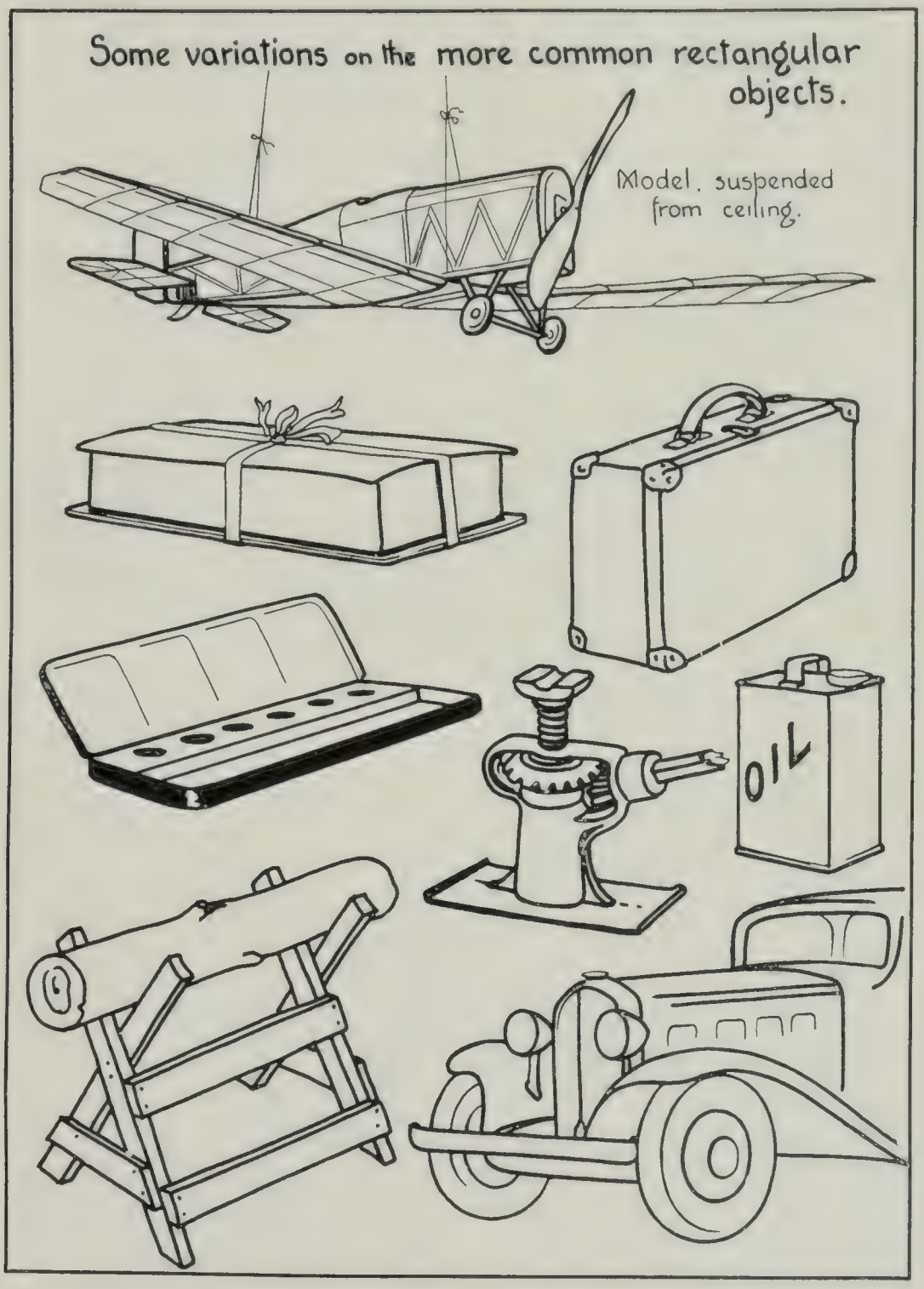


Fig. 3

A. shows position of desks in most class rooms – awkward.

B. shows desirable position, – desks facing model.

Shoulders and pencils must be at right angles to the line of vision.


Some variations on the more common rectangular objects.
Model, suspended from ceiling.
OIL

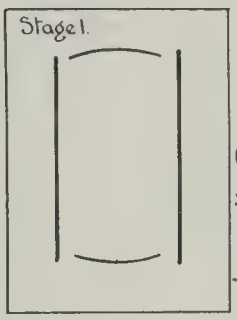
Suitable lessons chosen from the school.

Development of a Drawing.

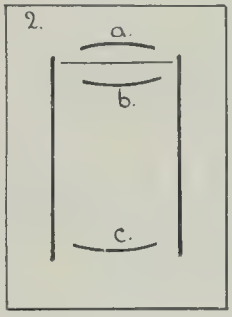
Four steps to follow at each stage of a drawing.

1. Observation, to fix mental picture of object. Look – close eyes – try to recall form – look again.
2. Tentative or trial drawing.– accuracy will depend on thoroughness of first step.
3. Comparison of trial drawing with the object
4. Correction of errors, using first drawing as basis for second.

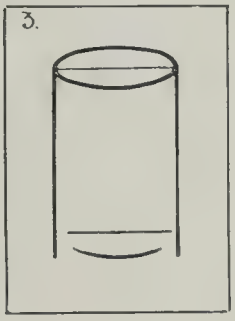
The Cylinder or any similar object.

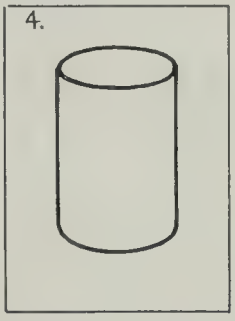


Put in lightly, lines bounding height & width. One of these, (usually the greater), should not be changed when making corrections to the main proportions.



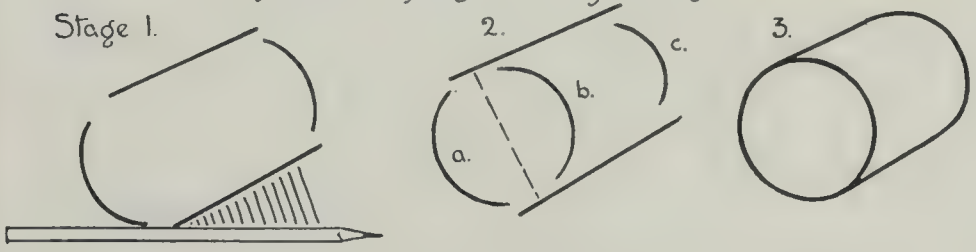
Note the proportion of ellipse – length to breadth – also its relative height to the whole object – a,b to b,c.
3, 4. Complete top & base





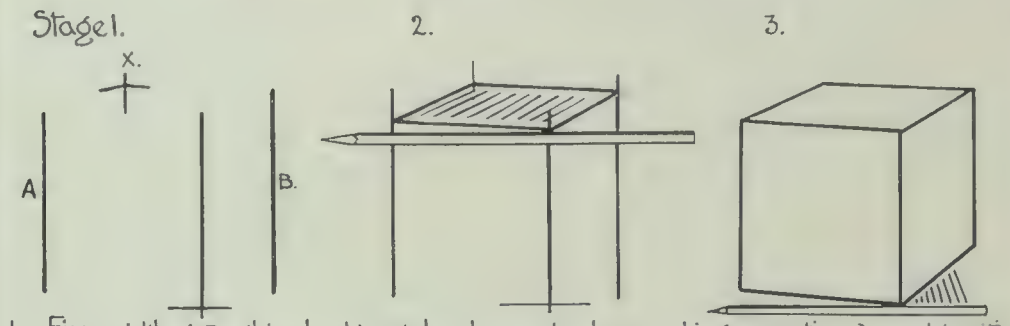
When drawing objects such as those shown on the following pages always draw in the main form before drawing detail. The marking of the position & size of details however will help considerably in checking proportions.

Cylinder lying horizontally.



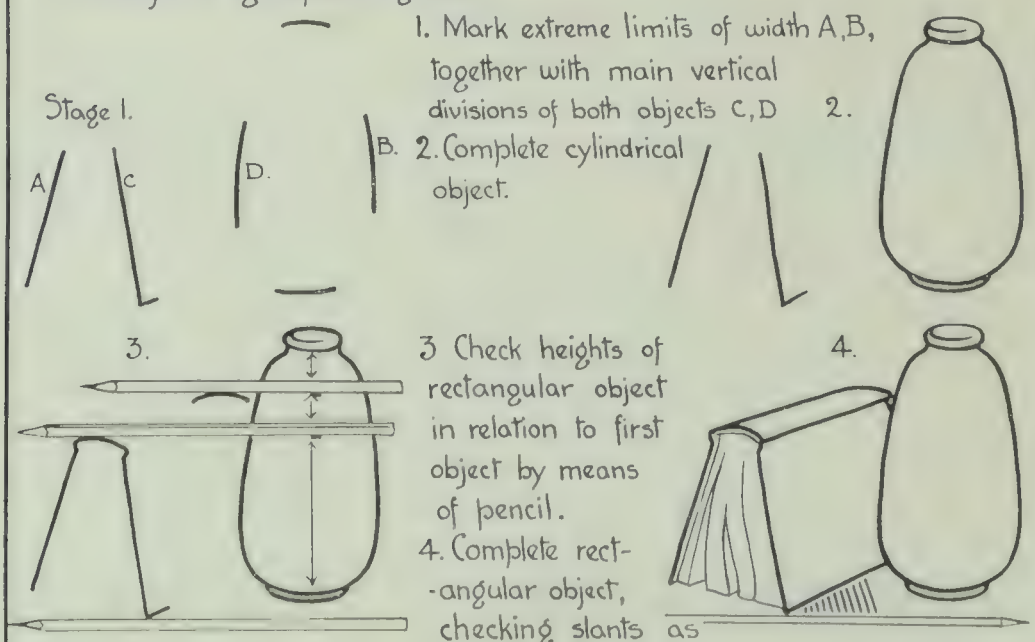
Development of a Drawing. (continued).

The Cube or any other rectangular object.



1. Fix width A,B, (this should not be changed when making corrections), and position of vertical edges including back corner X. Mark tentative height.
2. Draw top noting enclosed shape (shaded), its height in relation to whole model and inclination of front edges to horizontal.
3. Complete base checking slant with horizontal pencil & with the top.

Two objects grouped together.

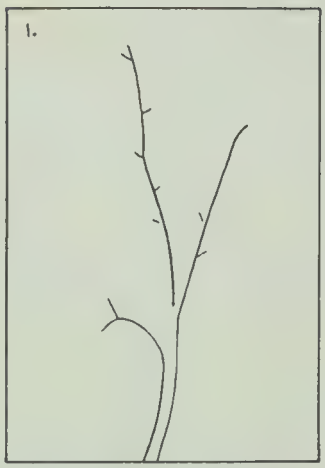


1. Mark extreme limits of width A,B, together with main vertical divisions of both objects C,D
2. Complete cylindrical object.
3. Check heights of rectangular object in relation to first object by means of pencil.
4. Complete rect-angular object, checking slants as shown in cube.

Above:- Drawing made with coloured pencils. Method similar for crayon work.

Left:- Drawing made in flat tones of poster or tempera colours.

STEPS IN DRAWING FROM NATURE.

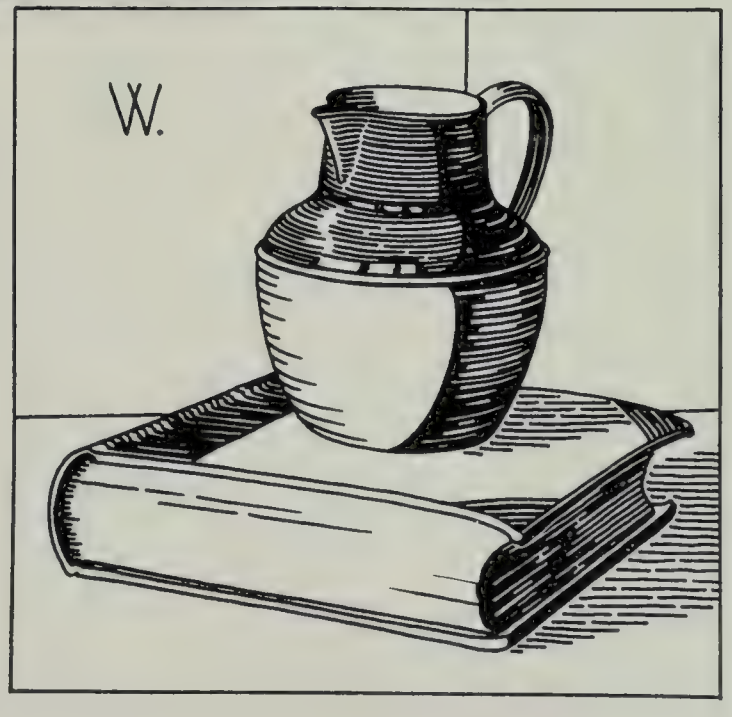


1. Draw main stem, noting length, direction and curvature. Mark positions of joints.
2. Draw centre veins. Note slant in relation to main stem. Check length & position of ends X.
3. Draw general shape of leaves. Note carefully the shapes of spaces between them – see shaded portions.
4. Add thickness of stem & other detail. Note particularly, curvature & swelling at joints.

Three tone drawing on grey paper.

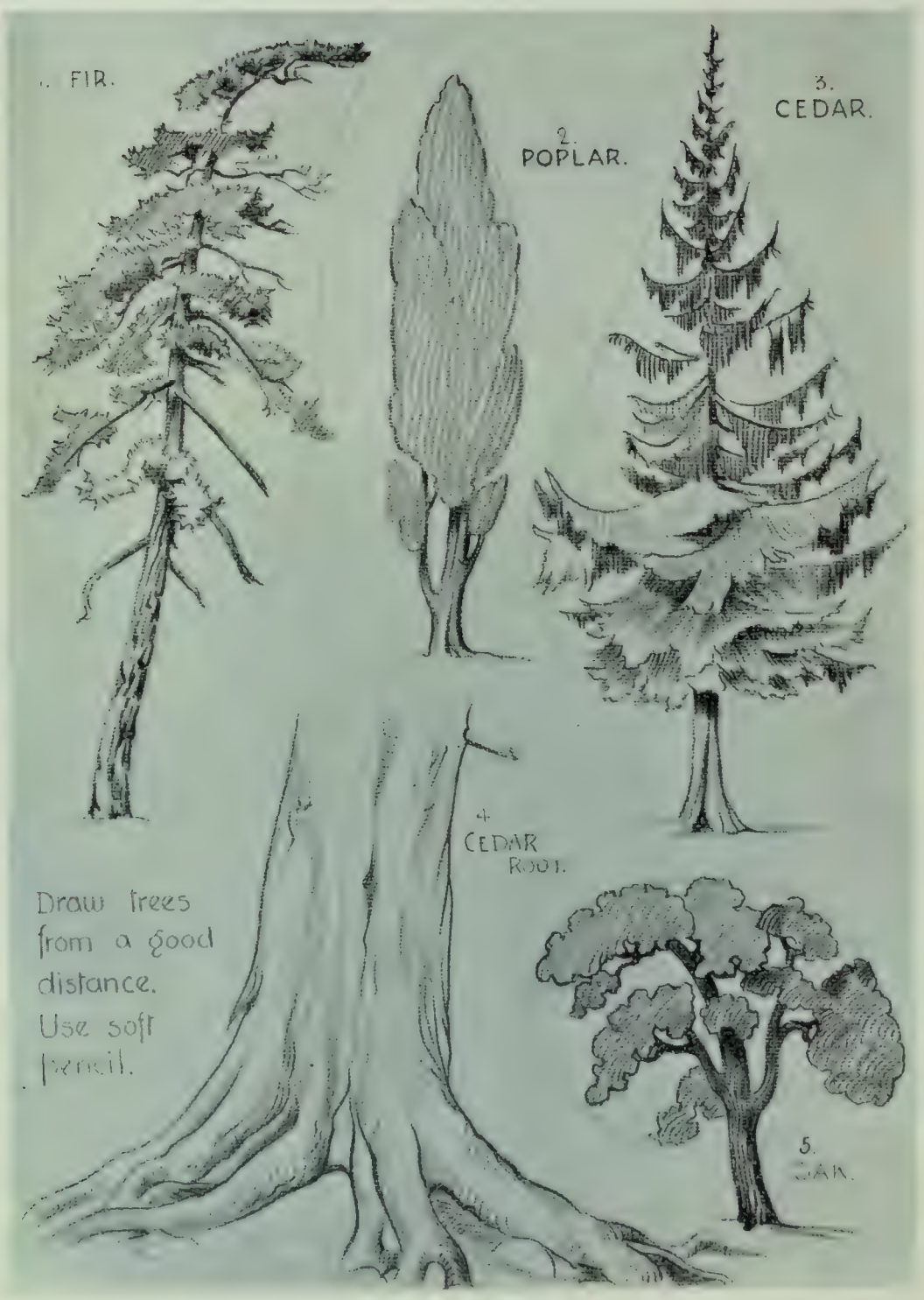
Both of the exercises shown should be preceded by light & shade drawing in pencil.

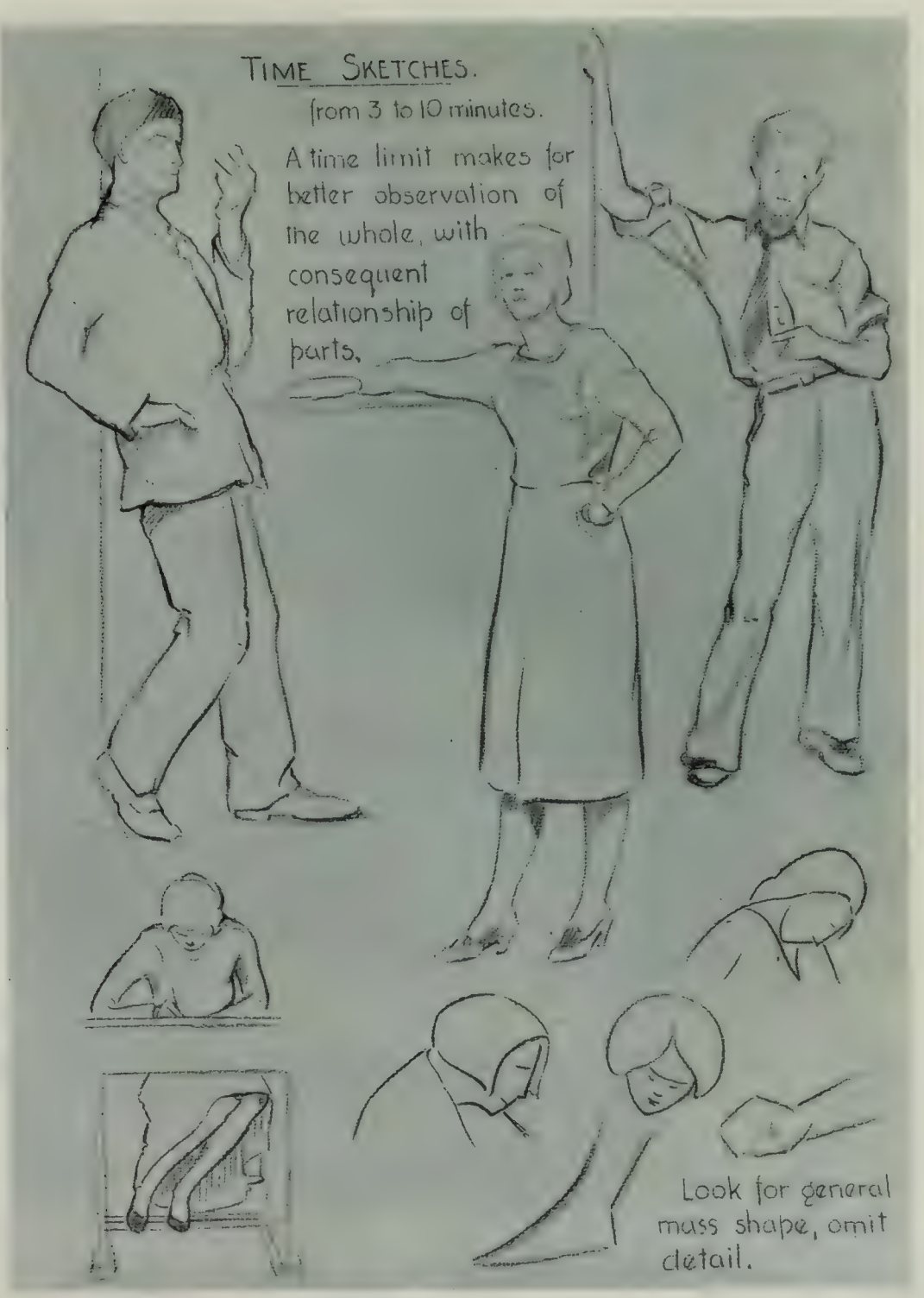
Pen drawing made with a Script pen.

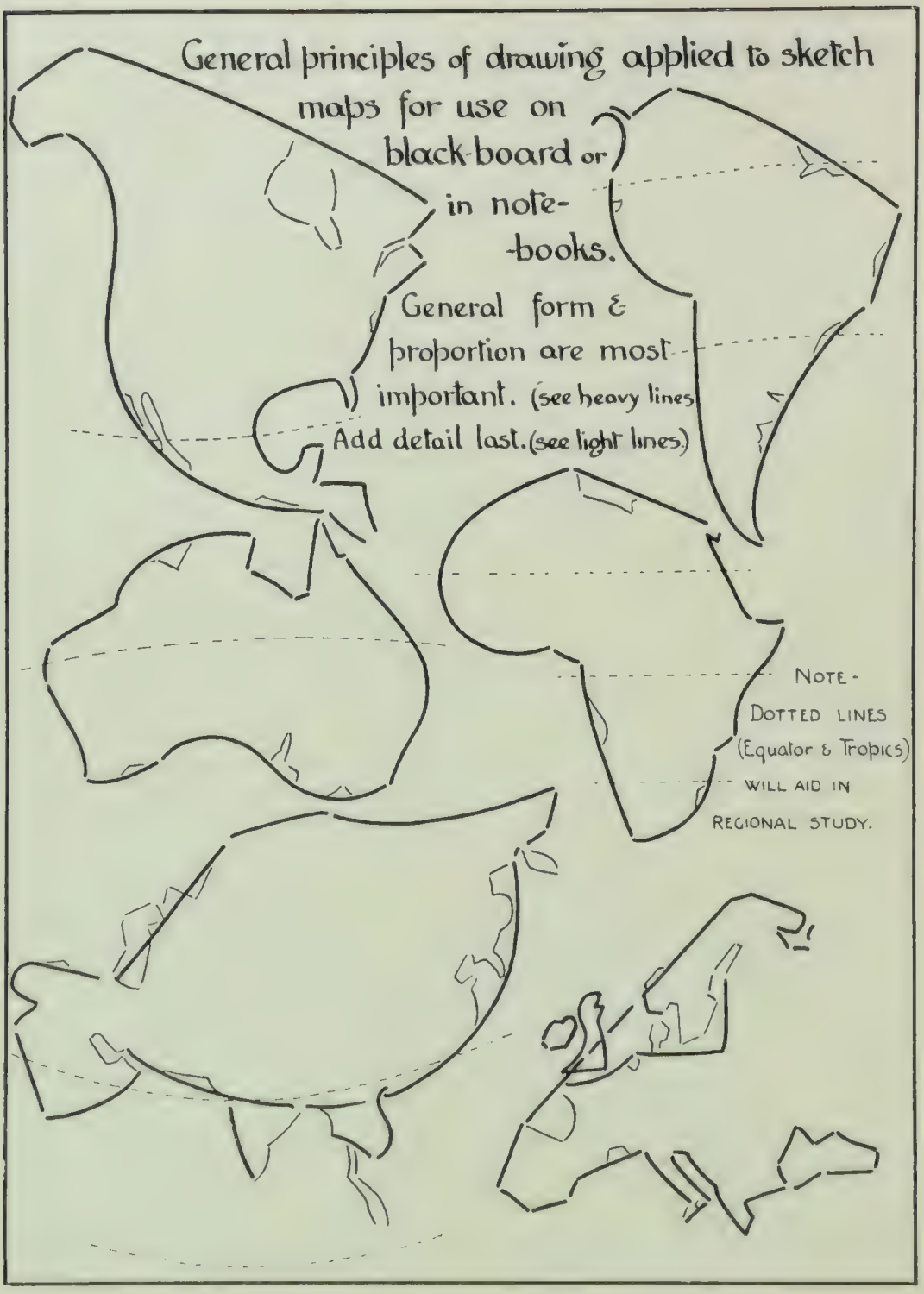


·Swamp·
·Robin·
1.
Wood-
-pecker.
2.
3.
Pacific Walrus.
1. Coloured pencils.
2. Flat tones:- poster colours.
3. Pen & water colour.

PLATE 36


1. FIR.
2. POPLAR.
3. CEDAR.
4. CEDAR ROOT.
5. OAK.
Draw trees from a good distance. Use soft pencil.


TIME SKETCHES.
from 3 to 10 minutes.
A time limit makes for better observation of the whole, with consequent relationship of parts.
Look for general mass shape, omit detail.


General principles of drawing applied to sketch maps for use on black-board or in note-books.
General form & proportion are most important. (see heavy lines)
Add detail last. (see light lines)
NOTE -
DOTTED LINES
(Equator & Tropics)
WILL AID IN
REGIONAL STUDY.

III. DESIGN SECTION

INTRODUCTION

DESIGN is the branch of drawing most associated with our everyday surroundings. Ornament, in fact, may be described as everyday art. It may be seen on every object with which we daily come into contact. It is not a matter which concerns only those who are engaged in the production of our belongings, for all of us are at one time or other called upon to select objects of various kinds for home and personal use. This being the case, the teacher will be wise at all times to connect the design lesson, in every possible way, with the everyday surroundings of the pupil. (Plate 42.)

The aim of this course is to give the pupils some idea of the main principles underlying design, and to cultivate in them a sense of orderly arrangement and construction. It should aid in developing the creative instinct of the pupil, and, last but not least, it should stimulate a sense of the beautiful in form and colour.

If original or creative work is to be obtained, the pupil's knowledge or experience must be widened gradually, for no one can produce new matter entirely disconnected from his previous knowledge. It will be found, therefore, that the work of the teacher falls under two heads: first, the gradual presentation of new facts —in this case, forms, arrangements, colour, etc.—and

second, the recalling and re-arranging by the pupil of the material supplied by the teacher. This will be explained in detail in the various sections as required.

A certain amount of copy work will also be found necessary if the pupil is to get a working knowledge of the material to be used.

THE USE OF COLOUR

As colour adds interest to the work, and should be used from the earliest stages, a few general rules on colour are given here which will apply to the work of all grades. Although rules will not make a colourist, yet much faulty colouring can be avoided by the observance of a few simple rules in the early stages, and by a systematic arrangement of colour problems. As the lessons proceed, children should be encouraged to collect examples of colouring in pictures, textiles, pottery, wall-papers, etc., together with natural objects of all kinds, and to note how the colours are arranged as to tone, quantity, and position. In the early stages a simple colour chart is useful to show the more elementary combinations of colour. It would be well, however, to realize that a simple chart will be of no value either in choosing the tones to be used, or in the placing of the colours. It merely gives in a general way the possible combinations that may be employed with any given colour as a starting point.

Broadly speaking, there are three ways in which colours may be combined harmoniously :

(1) By using several tones of the same colour—*Monochromatic* harmony.

(2) By using related or similar colours, those next to each other in the colour circle—*Analogous* harmony.

(3) By *Contrast* of colours opposite, or nearly opposite, each other on the colour circle. The extreme opposites are complementary to one another.

Other harmonies are usually variations or combinations of these three. Black and white as contrasts to colour values may be used at all times if desired.

The knowledge of these general combinations enables the designer to emphasize or to subdue any portion of a design. Related colours can be used effectively for subdued effects, while contrasting colours make forms stand out violently. These effects, however, are not entirely due to colour. When considering any combination of colours in a given scheme it is important to note the *tone* values of the colours employed. The final effect will often be influenced, as much by the judicious contrasting of light and dark tones as by the difference of colour. For illustration of this, note the arrangement of black and white in many of the illustrations used in this book.

Pure colours may be modified by a slight addition of another colour; for example, blue may be modified by the addition of a very small quantity of yellow or of red. The resultant colour, green-blue or purple-blue, is then known as a *hue* of blue. A pure colour may be subdued or greyed by the addition of its complementary colour, or of black: for example, red is greyed by the addition of green or black; green is greyed by red or black. Young children will generally use colours in

their pure state, but with increasing age and practice will find that hues of various colours contrasted with greyed colours often give more pleasing results.

Colours are sometimes classified as *warm* or *cold*. Warm colours are those in which red or yellow predominates: cold colours are those containing much blue. As a rule warm colours are much more insistent or noticeable than cold colours; hence a small amount of a warm colour, such as red or orange, will balance a much larger quantity of a cold colour, such as blue or green. Greyed colours and cold colours generally make the safest and most pleasing backgrounds.

Directions for Use of Water-Colours

Order and system are absolutely necessary in the care of colour boxes and brushes. A clean box is essential.

Do not rub the brush when cleaning; stir it around in the water to rinse out the colour, and then draw it gently to a point through the paint rag.

Put it away while damp.

When taking water from dishes hold the brush in a horizontal position.

When mixing colour do not scrub with the brush; try to keep it pointed as much as possible, using the side of the brush with a rolling motion of the fingers.

When laying on a wash of colour remember these three points:

(1) Work with a brush full of colour.

(2) Lay on the colour in broad strokes from left to right, and do not re-touch as the colour is drying. (Plate 40.)

(3) Lift off the surplus colour from the bottom of the wash with the point of a dry brush.

When drawing with the brush, hold it near the point and keep in an upright position. Slope the brush slightly in the direction of the line or edge to be drawn. (Plate 40.) For mass-drawing, work outwards from the centre, keeping plenty of colour on the paper to allow for corrections being made before the colour dries.

Poster or Tempera Colours

Poster colours are opaque water-colours, and are obtained in bottles or tubes. They have several advantages over ordinary water-colours, and are strongly recommended for use in High Schools and in the upper grades of elementary schools.

They dry evenly, even when new colour is joined to colour already dry. One colour can be applied over another when dry, and mixed colour can be saved from day to day, thus avoiding the tedious process of matching when a colour is required again.

For brush work and care of brushes the same rules as given for water-colours will apply.

Dip colour from bottles with a small stick or wire, keeping one in each colour so as not to mix different colours in the bottle.

Colours are lightened or darkened by the addition of white or black.

PRINCIPLES OF DESIGN

The following brief propositions and notes are recognized as fundamental principles of Design in the standard

work of Owen Jones, and will be useful to the teacher in planning, teaching, and criticizing Design work in class.

First.—Geometrical Ornament is the most primitive form of decoration. All ornament should be based upon a geometrical construction, this construction being decorated by conventional representations of leaves, flowers, or other natural objects.

[*Note.*] Geometrical Ornament, consequently, forms the basis of all the design in our school course, and in the early stages in all grades the exercises will be entirely geometrical. (Plates 43, 44.)

Second.—The majority of geometrical ornaments may be divided into three groups :

(1) Continuous or ribbon-like patterns (bands).
(2) Enclosed spaces (panels).
(3) Unlimited flat patterns. (Plate 80.)

Third.—The three elements of form may be stated as :

(1) The straight line—vertical and horizontal.
(2) The inclined line.
(3) The curved line—
    (*a*) Arc or regular curve.
    (*b*) Variable curves.

Fourth.—Harmony of form consists in the proper balancing and contrasting of these three forms, and no composition can be perfect in which any one of them is omitted. (Plate 42.)

Fifth.—All junctions of curved lines with curved, or of curved lines with straight, should be tangential. (Natural Law.)

[*Note.*] The more the decoration approaches a suggestion of natural growth, the more essential the observance of this rule becomes. (Plate 41.)

Sixth.—Flowers or other natural objects should not be used as ornament, but only conventional representations founded upon them, sufficiently suggestive to convey the intended image to the mind. (Plates 62, 63.)

[*Note.*] Universally obeyed in the best periods of Art; always violated when Art declines.

Seventh.—In surface decoration all lines should flow out of a parent stem. Every ornament, however distant, should be traced to its branch and root.

[*Note.*] This leads to the consideration of *Radiation*, a very important point in natural construction and also in decorative construction. Note in nature the number of forms, such as plants, flowers, shells, insects, etc., in which the structural lines radiate from a common centre. (Plate 41.)

Eighth.—Those proportions will be most beautiful which are the most difficult for the eye to detect.

A rectangle of proportion of 4 to 8 will be less pleasing than one of proportion of 5 to 8. Note the division of windows and door-panels in Plate 42.

In like manner a circle will be less pleasing than an ellipse or oval. Observation of natural forms will show predominance of the oval over the circle. (Plate 49.)

It is very important that the foregoing general directions should be thoroughly grasped by the teacher of any grade before proceeding to the particular directions for each group. The following sections have been arranged to mark the progressive steps in the development of the work, and have no fixed relation to the

grades except in a very general sense, as it will be found that some classes will progress much more rapidly than others. The range of work to be covered is left, to a certain extent, to the discretion of the individual teacher.

PROGRESSIVE STEPS IN DESIGN

Step I

Straight Lines

(*a*) Pupils will copy from the teacher's examples simple borders and panels. (Plates 43, 44.)

(*b*) Reproduce from memory similar patterns. Colour with crayon or water-colour. Little or no reference need be made to rules at this stage, beyond drawing attention to the repetition of lines and forms.

Begin with simple measurements, increasing the difficulties as the pupils acquire facility in measuring and the use of the ruler. Attention should be given to the correct method of holding ruler and pencil when measuring and ruling. The pencil should be held vertically over the line of the ruler to ensure the point exactly coinciding with the marks upon the ruler. The ruler should be held in position by the spread fingers of the left hand at the centre of the ruler. Have all drawings placed squarely upon the paper, and slightly above centre. Pupils should learn and use the following terms in connection with—

(1) Lines—vertical, horizontal, oblique, parallel.
(2) Figures—square, oblong, triangle, diagonal, diameter.
(3) Angles—right angle.

Step II

Simple Curves

Ruler work as in Step I., with the addition of simple curves. (Plates 45, 46.)

Again begin with—

(*a*) Copy work, followed by

(*b*) Reproduction from memory.

Having mastered to some extent the use of the ruler and become familiar with some of the simple combinations of straight lines, the pupils should proceed to decorate these constructions by the addition of very simple curves.

The pupil's eye will not be sufficiently developed at this stage to detect subtle variations of curve. The early exercises, therefore, should employ curves of a regular geometrical nature, although these will, of course, be drawn freely and without the aid of compasses.

Step III

Static Borders

The new material to be presented to the pupil at this stage (corresponding to the (*a*) division of previous sections) will now take the form of the investigation of some of the simple rules of natural construction.

The three most common principles of natural construction applied to the construction of pattern are *Repetition*, *Contrast*, and *Variety*.

Perhaps the simplest illustration of these points is

the oval or egg form, which enters so largely into the composition of many beautiful natural forms. Examination of the figure (Plate 49) shows that the two sides are alike—that is, they are *repeated*, but are placed in opposite or *contrasted* positions; and that, lastly, the curve, unlike that of the circle, changes or has *variety*.

Have pupils name as many forms as possible, verifying and illustrating these three principles—Repetition, Contrast, and Variety. (Plate 49.)

The example of *symmetry* here shown provides perhaps the simplest method of inventing interesting shapes or motifs with which to build patterns. The use of symmetry together with repetition also gives the simplest method of building the patterns.

Method of Procedure

Draw on the blackboard a graphic vocabulary of straight lines showing all the possible variations of direction, length, and thickness—vertical, horizontal, oblique; long, medium, short; thick, thin. Do the same with the curves shown on Plate 50.

Next try sketching on the blackboard, or cutting from paper, forms such as shown on Plate 50, varying the lines used from the blackboard vocabulary.

Arrange these in simple repeats, as on Plate 51.

Finally, have pupils sketch symmetrical forms of their own and arrange them in a manner similar to those of the teacher.

[*Note.*] The plans shown on Plate 51 are in no sense to be considered as finished patterns for copying, but merely arrangements for guiding the pupil. The pupil's first sketches should be on a small scale. After criticism

by the teacher one sketch might be selected and drawn to full size in colour. (Plate 55.)

The construction of the groundwork for all the patterns in Step III. and subsequent work will involve the use of the set-square and compasses, and attention should be given to the method of using these instruments.

(1) The set-square is always used in conjunction with the ruler, and not by itself. (Plate 53.)

(2) See that compasses are held by the top, and not by the two legs.

The following terms should be understood, and used in connection with all geometrical construction:

Circle, semicircle, radius, arc.

Rhombus, equilateral triangle, hexagon.

Pupils should be able to construct these figures, and also to work the following exercises with either set-square or compasses:

(1) Bisect a line or an angle.

(2) Erect a perpendicular.

(3) Draw parallel lines.

These operations will enter into the construction of the framework of many designs.

Step IV

Panels with Radiation

The simplest form of panel decoration will be that in which the motifs are symmetrical, and are repeated around the centre of the figure in regular order, or, in other words, radiate from the centre.

Before working an exercise of this nature draw attention to radiation in nature, and have pupils find as many instances of this construction as possible. (Plate 41.)

Plates 54 and 58 show two different methods of setting out to decorate a simple panel. In the first examples on Plate 54, it will be noticed that one motif only is repeated in each figure, and that unity of effect is obtained by the use of some suitable geometrical figure to tie the parts together. It is also shown that the figure so used may be either left in its simple form or further elaborated. These additional figures have the same effect as the horizontal lines in the borders on Plate 51.

The illustration on Plate 58 shows that the same effect may be obtained without actually drawing this binding figure, though it is often advisable to retain the tie line even in these arrangements.

The illustrations of the exercises in Steps III. and IV. show that by varying the complexity of the motif used, each type of exercise suggested can be made to vary from an extremely simple to an exceedingly difficult piece of work.

Notice on Plates 55, 56, and 59, how the use of contrasting lines both in border patterns and in panels gives opportunity to vary the tone or colour in the backgrounds.

Step V

Non-Symmetrical Balance

With some experience in working exercises of a regular type, as shown in Steps III. and IV., where the balance of spaces or forms is practically automatic, the

pupil might attempt some of the exercises set out in this section, where the balance of forms and colours must be gained by trial, and can only be felt. This type of balance or arrangement is, from its very nature, more varied than the symmetrical, and consequently more interesting and more difficult. It will enter largely into the planning of poster design, the composition of pictorial drawings, and the arrangement of many objects in the home.

Method of Procedure

Sketch several symmetrical motifs from Steps III. and IV. Study Plate 60, and re-draw these on the blackboard upon curved centre lines. Stress the point that the final figures can only be arrived at by trial. Note the variation that takes place in the curves of opposite sides. These figures will be seen to have a much more graceful and flowing character than those built symmetrically, and can be combined in flowing borders.

When some facility has been gained in the previous exercises the pupil may be shown examples of space division, as given on Plate 61. Deal first with the triangle, then the square, the rectangle, and the circle. Make the division first by straight lines and follow with curves. Draw many upon the blackboard and let the pupils copy. Turn the designs upside down and sideways to check the balance. Let these be worked first in black, white, and grey. They may afterwards be worked in colour. Follow up as in all sections with memory work to exercise the pupils' creative powers.

Steps III., IV., and V. deal with the decoration of spaces in an abstract way—that is, the forms used have no direct relation to any particular nature form in a

representational sense. The following sections will give the method of obtaining new material with which to decorate these plans in a more interesting manner.

Step VI

Ornament based on Nature Forms

The work of this section brings us to the highest type of ornament—namely, that which is based on nature forms. To the elementary pupil conventionalization is undoubtedly most difficult to understand and handle. It needs to be explained clearly at the start, but once the idea is grasped it will be found extremely fascinating.

Conventionalization is the modification and simplification of nature forms brought about by the limitations of materials and tools. The weaver, the stone carver, and the metal worker hammering a sheet of copper, might each use the same nature form as the basis of ornament —for example, a bird or flower. It is obvious that the three results would be quite different in treatment. The weaver could make use of colour, but by the nature of his material would be restricted in the drawing of the form—hence the peculiar notched lines of woven designs. The carver and the metal worker would both have to depend on form without colour, but each would show a different type of modelling—the one cutting and producing sharp edges, the other hammering and producing rounded swelling forms. None of the three could imitate the nature form or produce a picture. The variations from nature, therefore, are not due to wilful distortion but to necessity.

The reason why the pupil in the average classroom finds difficulty in understanding conventionalization arises from the fact that he is not working under any limitation of material, and therefore cannot see the need for altering or " improving on " nature.

This is a strong argument in favour of introducing some kind of applied or craft work whenever the opportunity occurs. Poster methods of representation are advocated later for the same reason. A simple poster calls for thought in eliminating unnecessary material, and is consequently a more intellectual exercise than merely drawing a naturalistic representation. The problem of the teacher, then, is to show the pupil these reasons for the modification of nature forms, and how to set about producing them.

The construction or growth of natural forms is very orderly—parts are related to one another and to the whole. This regular order is sometimes spoken of as the geometric construction. It will be sufficient here to refer to it as the *growth*. It is knowledge of this growth that is so essential in conventionalizing any form. The actual shape of any individual form is not so important. This is the place where a study of Historic Ornament will help. Note the examples shown on Plates 62 and 63, and then compare these with diagrams of the growth lines on the next plate. Note the radiating growth of petals, the relationship of leaf veins to the outer shape, the junction of leaves to stems. Pupils need not at this stage make completed drawings of these examples, although at another time these may make interesting studies in connection with history and geography lessons. Rather have them make skeleton drawings of several, side by side, and compare them. It will be seen that the

good designers of all ages and countries have followed the rules of natural growth, although they have often ignored the individual shape.

As soon as this is understood the pupils will be ready to design new forms for themselves, based on leaves, flowers, trees, fish, birds, etc., as shown in the illustrations.

Before attempting any of the given groups, a drawing should be made from nature, or, when this is impossible, from photographs, to find the main characteristics of growth and form.

Next, pupils should copy a few of the given examples in order to familiarize themselves with the construction to be used.

Finally, put away all copies and sketches and draw from memory.

During this period the teacher watches, guides, and suggests, while the pupil creates. Following are particular suggestions for the guidance of the teacher in each group of forms.

Leaves (Plate 65)

General Characteristics.—Leaves follow many structural plans. Several are shown on Plate 65—

The edges may be smooth, serrated, or scalloped.
Veins and serrations are usually graded in size.
Veins and serrations have a direct relationship.
The surface is made interesting and varied by colour bands, spots, and also by light and shade.

The illustration shows a number of conventional leaves conforming to these rules.

Have the pupils examine and draw different types of leaves, noting the differences in the characteristics mentioned.

Next, have them copy a few of the given examples.

Finally, put away all copies and draw from memory, trying to invent new combinations of the given elements —viz. veins, edges, colours.

Flowers (Plate 66)

General Characteristics.—Two common forms of flower construction are shown—rosette form, and bell or trumpet shapes. The petals in either case will radiate from the base or calyx. Compare these with the flower structure of the examples given under Historic Ornament.

Use the forms on this Plate in the same manner as those on the previous Plate.

Fish Forms (Plate 67)

General Characteristics.—Fish forms vary from narrow to broad and rounded. The lines, however, are always easy and graceful, and the drawing of a few simple fish forms will help to an appreciation of a good line.

Heads are clearly marked by the line of the gills. Study the form of these for variations.

Fins usually, but not always, are spiny, the spines showing gradation and radiation.

Interest on the body surface is given by scale formation and by bands and spots of colour.

Study any specimens available, or any good natural history book. In its pages fish will often be found more fantastic than one would think possible. Use the

same method as in previous sections, and let the pupils create new fish forms.

Many of the forms given on this and the following Plates are from memory drawings made by students after lessons such as those suggested in the text.

Birds (Plate 68)

General Characteristics.—First and foremost, easy graceful lines. Wings show splendid examples of radiation. Beaks are decidedly varied, but all show distinct relationship to the form of the head.

Feet and claws with scaly formation can be made much of, but in birds flying may often be ignored.

Decoration of the body by colour will best be understood by studying stuffed specimens and good pictures.

Let pupils proceed to work as in previous sections. Copy first, then follow with memory drawings.

Trees (Plates 4, 5, 69)

General Characteristics.—Tree formation is very similar to that of leaves, and probably the most important point to keep in mind is the relationship of the general form of the foliage to the growth of the branches. (See Plate 4.) Trees have been largely used in decoration, and a study of the illustrations, with subsequent sketches of them, will be the best way to become familiar with these. If possible, make some simple flat mass drawings of distant trees from nature. Compare the branches with the veins of leaves. (Plates 4, 65.)

Animals (Plates 3, 70)

Animals of all descriptions are always of interest to children, and have always provided a wealth of material for the designer. The difficulty in the average school will be the making of drawings to familiarize the pupil with any given animal. If all else fails, try to get good pictures or photographs of the desired animal. Then sketch and study the given forms and proceed as in the previous examples. The animals of your own province or country should be used first.

The page of cats and bats will be useful for Hallowe'en decorations and designs, and should be used just as all the other nature forms. They are grotesque, but, nevertheless, have been as carefully planned with regard to structure and line as any of the other animals.

Insects (Plate 73)

General Characteristics.—Radiation of construction and of decoration is strongly marked. This is especially so in the wings of the butterfly. Gradation in both the markings and the serrations of wings is also very noticeable. Butterflies mounted on cotton wool under glass make excellent nature studies preliminary to the design lesson.

Ships (Plate 74)

Ships are akin to fish and birds in that the lines are easy and graceful to enable them to move through the water. The construction of bent wood will give strong curves. Study drawings of old ships in the history books. If unfamiliar with ships, study carefully the positions of

masts and sails. In simple decoration the rigging can often be almost entirely ignored. Note these points in the illustration.

Nature Forms (Plate 76)

Plate 76 gives particular nature forms treated conventionally. The only difference between these and the preceding examples is that the particular form of individual leaves and flowers has been retained sufficiently to preserve their identity. The growth must be adhered to carefully as in the other forms. Unless this type of decoration is being applied in some craft work which will enforce conventionalism, there is a tendency to drift into purely representational drawings, which are very often neither good representations nor good design.

Step VII

Nature Forms in Pattern Making

An examination of the accompanying illustrations will show that as far as arrangement is concerned these patterns are all based on the constructions and rules given in Steps III., IV., and V.

Step V., with flowing borders and balance without symmetry, gives the most interesting, and also the most difficult, exercises.

One more rule might be noted here. When using two or more forms in a pattern, let one always be more important than the others, or, in other words, let it *dominate the pattern.* This may be done by increasing

the size, or by making the contrast of tone and colour more distinct. (Plates 79, 81.)

Method of Working

Choose some motif from work of previous sections—flower, bird, fish, etc.

Decide on the plan of design to be used, and put in the main lines, *e.g.* for a running border—the stem line ; for a fish border—the size and position of the largest fish and the distance for the repeat.

Complete by putting in secondary forms, and connecting the individual parts of the design. Look at it in various positions, sideways and upside down, to check balance.

Step VIII

Simple Applied Design

Applied design presents many difficulties in the average Public School or High School classroom, but craftwork and design are so related and dependent upon each other, that some effort should be made to overcome these difficulties and introduce some simple applications of design. The difficulties arise from many causes—lack of time, space, or material, and perhaps from the teacher's lack of experience in any craft work. This latter point, of course, would be a serious drawback, but is not insurmountable. There are many simple applications of design which will not call for any more technical skill than is already called for in the use of pencil and brush—for example, the designing and paint-

ing of a simple parchment or paper lamp-shade, or the decorating in colour of a small white-wood box. Another exercise which might be worked out in conjunction with the manual-training class would be inlay designs for trays or box lids, together with the designing of shapes for letter-racks and other articles of furniture. These resolve themselves into exercises in proportion and the use of good line, *plus* the knowledge of what it is possible and wise to do with a piece of wood and carpenter's tools. Still another simple craft requiring little equipment is the etching of patterns upon copper or brass. This suggests the possibilities of blotter corners, book-ends, and small ash trays. Space here will not permit of a description of these methods, but full details of the various processes will be found in *Design for Industrial Arts*, by John Kyle (Nelson). These include many forms of woodwork decorations, stencilling, linoleum-block printing, metal etching, and repoussé metal work.

Step IX

Posters Illustrating Subjects of Study

As already mentioned, the poster form of representation calls for certain limitations of expression, and hence for more thought in its production. While dealing in a sense with design there seems to be no reason why these lessons should not also supplement the other subjects of the curriculum. A two-fold purpose will be served. The scope of material for drawing is widened, making for greater interest, while the graphic expression of facts

from lessons in other subjects may awaken further interest in the lessons illustrated. The subjects best lending themselves to this form of expression are undoubtedly history, geography, nature study, and health, including sports. There is no reason why subjects should not be taken from any other study, such as literature and science.

The illustrations given in Plates 72 and 84 include subjects for Thanksgiving Day and Christmas decorations.

Aim and Method of Working

This work should give exercise in selection, spacing, drawing, and lettering.

The poster should confine itself to expressing one thing or idea in a clear and striking manner.

This effect will be obtained by simplifying both the drawing and the lettering. After any drawing is made it should be gone over to eliminate unnecessary details. The wording should be reduced to a minimum.

The choice of colour is important. Bold contrasts of tone and colour will emphasize the important features. The colouring of the lettering should balance the colours of the drawing, and the same rule of contrasts will apply. Note the colour illustrations of these points. (Plates 81–90.)

Many excellent examples of posters and advertising drawings from magazines and other sources can be readily obtained, and these should be placed before the pupils, and the above points carefully noted.

As in all other branches of this work, knowledge must first be gained from the work and experience of others.

The next step is to select subject and material. Here

the supply is boundless. Many of the things required could not be drawn first hand, so search must be made for good photographs. These are found readily in many magazines. Authentic drawings from textbooks on history and geography supply much good material. Anything and everything may be of use.

Having obtained suitable material, next decide on the style of drawing by consulting Plates 86–92 and any other printed posters available.

Next make small sketches to find the best arrangement of drawing and lettering before commencing the final drawing.

The following general topics will suggest many lessons:

History.—Development of (1) Travel—(*a*) land, (*b*) sea, (*c*) air; (2) Costume; (3) Weapons and implements; (4) Buildings.

Geography.—(1) National costumes; (2) Animals; (3) Native boats or other means of conveyance peculiar to a country; (4) Landscape.

Health.—Topics such as Cleanliness, Exercise, Diet.

Reference Books.—The House of History; Foundations of History; Everyday Things in England (Quennell); *Wrong's History of England; National Geographic Magazine; Encyclopædia Britannica.*

LETTERING

Lettering provides a very practical exercise in the application of the rules of design. It is a branch of design which will be practised by most pupils in after life. The interest aroused by its practice is due probably

to the great variety possible in the forms of letters and in the ever-changing problems of spacing.

As in all good design, decoration is subordinated to use. The test of good lettering is legibility. No matter how beautiful the forms may be, if lettering is hard to read its design is bad.

The commonest letter forms in use to-day are derived from the Roman letters. In early lessons the skeleton forms and construction of these letters should be mastered. These can be practised with pencil and pen. Round-pointed lettering pens are very effective for these simple skeleton forms, for they produce a uniform line. By using different sizes of pens a suitable thickness of line can be obtained for different sizes of letters. These exercises may be worked on lined foolscap at first. Master the capitals, then the small letters. The letters are graded in order of difficulty for teaching, in the same manner as the object drawing—horizontal and vertical straight line letters first; next, oblique line letters, followed by combination of straight line and curve; and lastly the five curved letters.

When the skeleton letters have been mastered pupils can try other simple alphabets for pen or brush. Block letters of various kinds will be suitable for poster work. Directions for making the various letters and for spacing are given with the illustrations.

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DESIGN SECTION

PLATES 39 to 95

Colour Chart

Primary Colours:-
Red, Blue, Yellow.

Secondary Colours:-
Purple, Green, Orange.

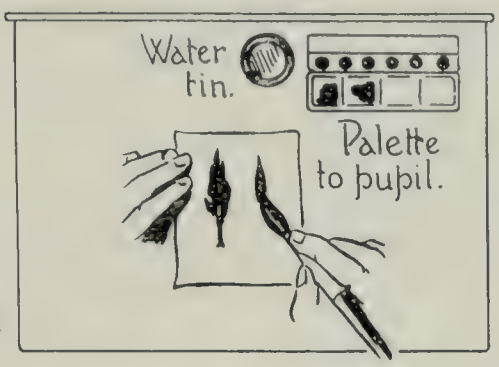
Hues:-
Nos. 2, 4, 6, 8, 10, 12.

Greyed Colours:-
The colours shown in the centre.

Complementary Harmonies:-
Any two opposite colours
e.g. 1 and 7, 3 and 9 or
4 and 10.

Analogous Harmonies:-
Any series of consecutive
colours as 1, 2, 3. — 5, 6, 7.
or 2, 3, 4, 5.

❖General hints on brushwork❖

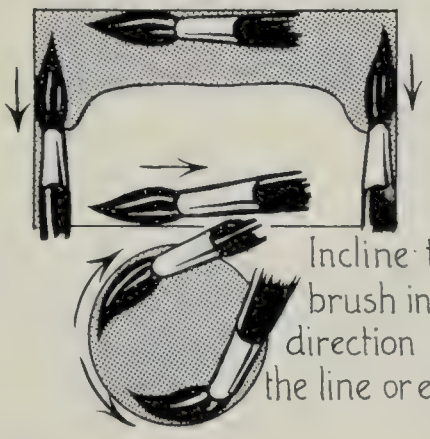


Encourage orderly and systematic arrangement of materials

Cover paper with broad strokes.

When drawing hold the brush in a vertical position.

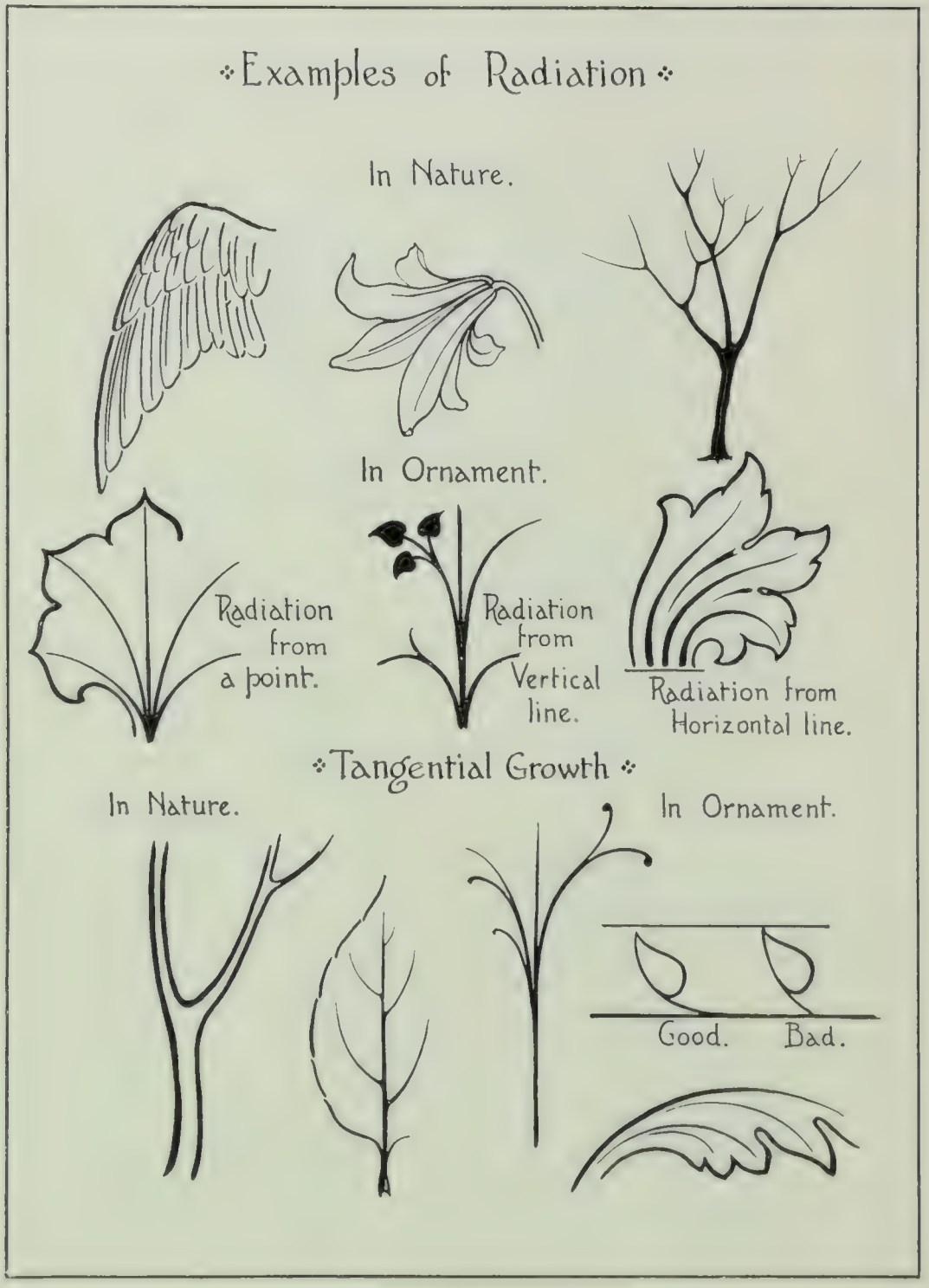
Finishing edges.



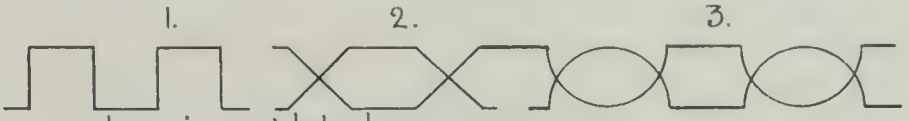
Incline the brush in the direction of the line or edge.

For fine lines use the tip.

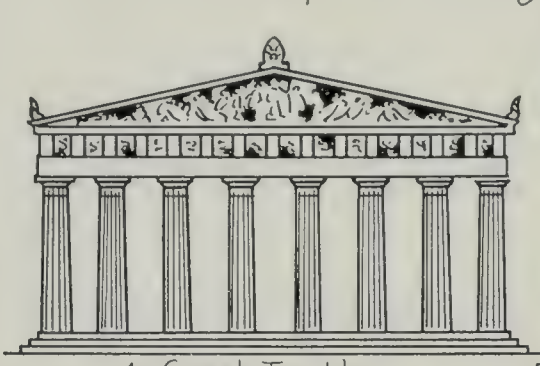
For heavy lines press down.


Examples of Radiation
In Nature.
In Ornament.
Radiation from a point.
Radiation from Vertical line.
Radiation from Horizontal line.
Tangential Growth
In Nature.
In Ornament.
Good.
Bad.

Illustrations of Harmony of Line and Form



1 & 2 show incomplete harmony



4. Greek Temple

5 Roman Arch.

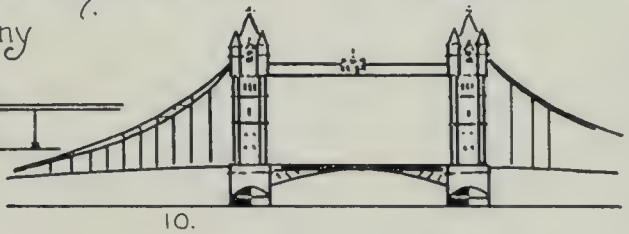
6.

7.

6 & 9 Incomplete harmony

Gothic Tower 8.

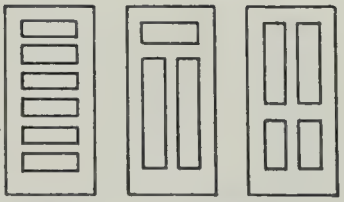
9.



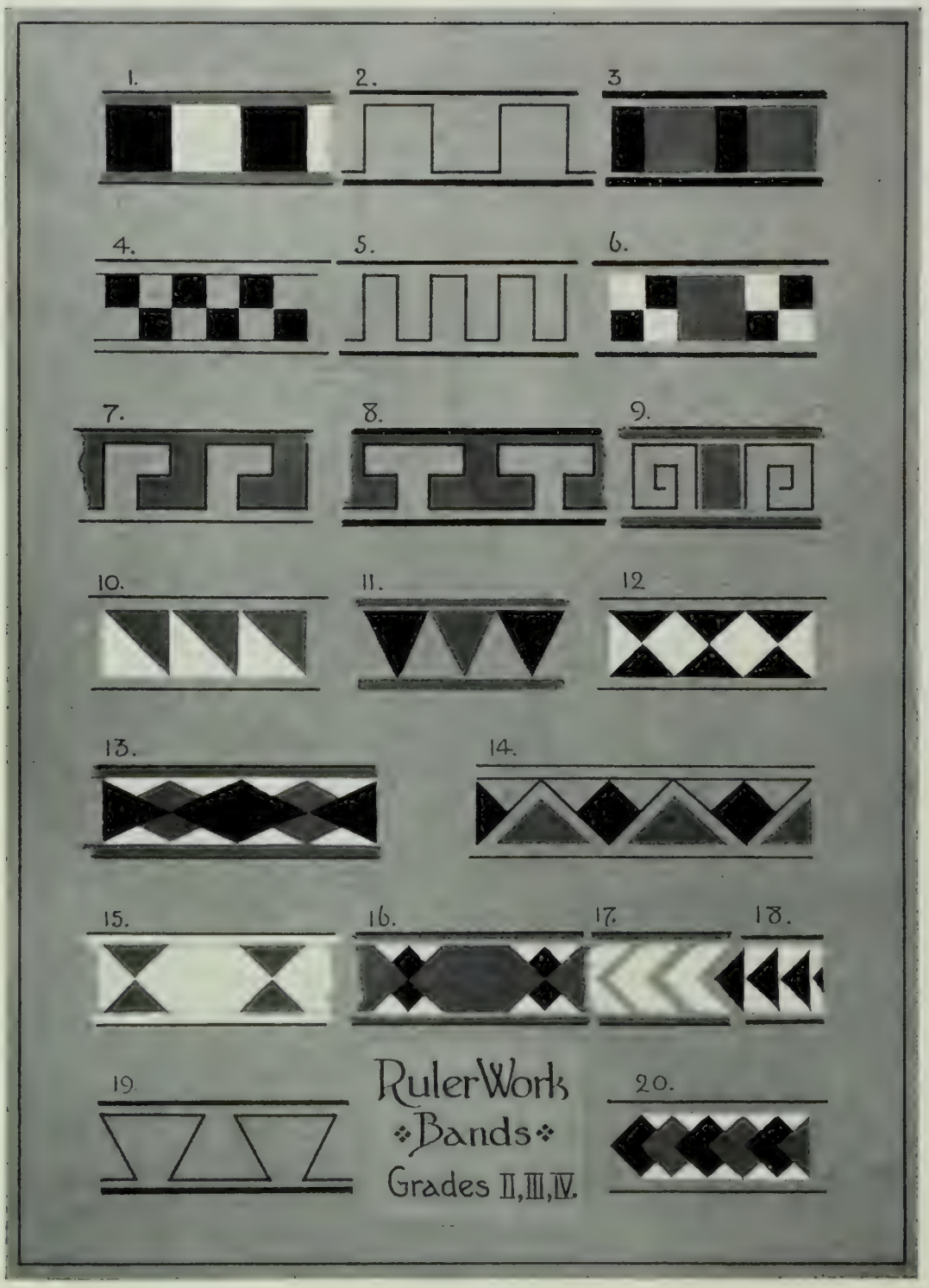
10.

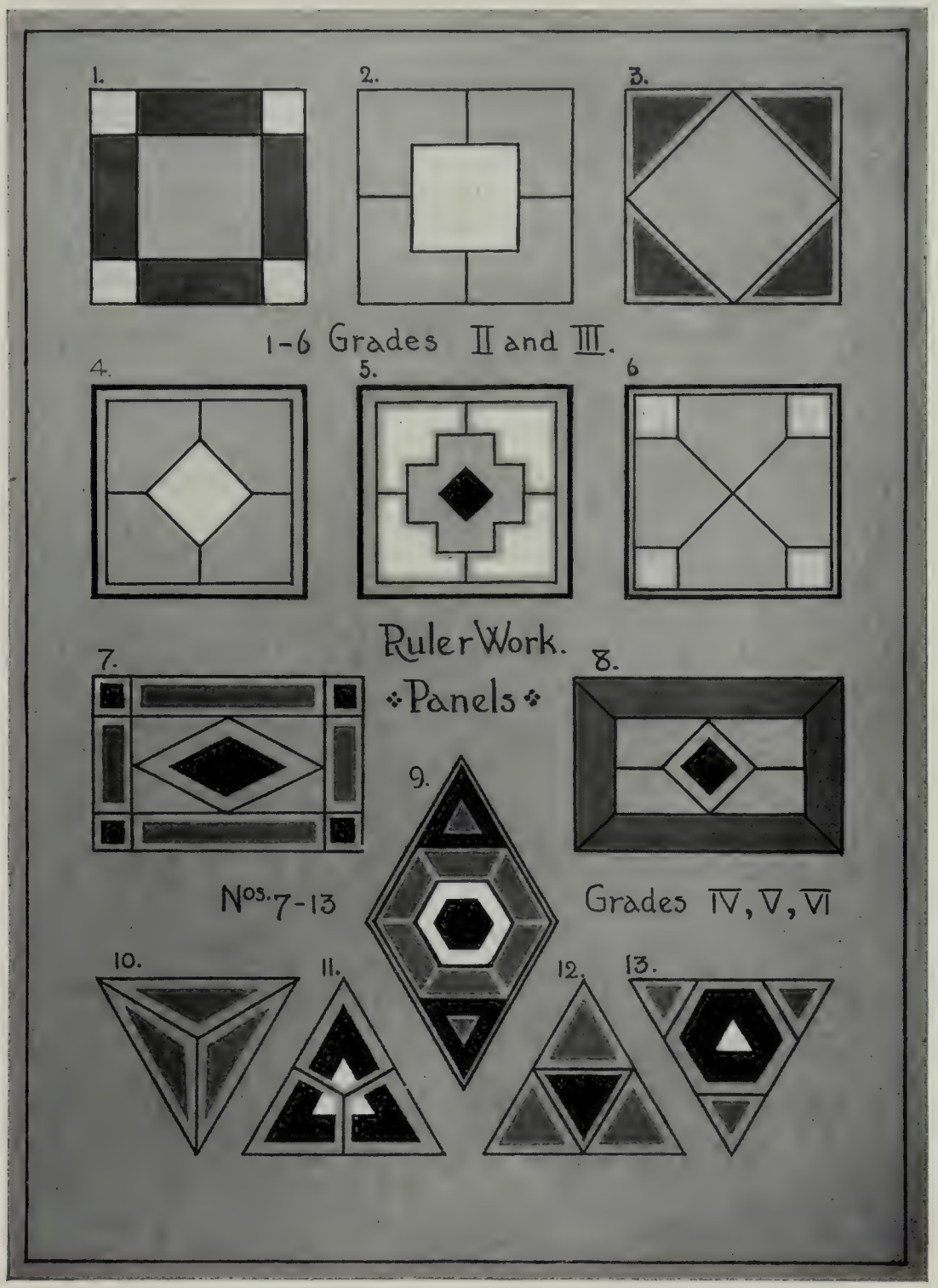
11.

Examples of proportion.

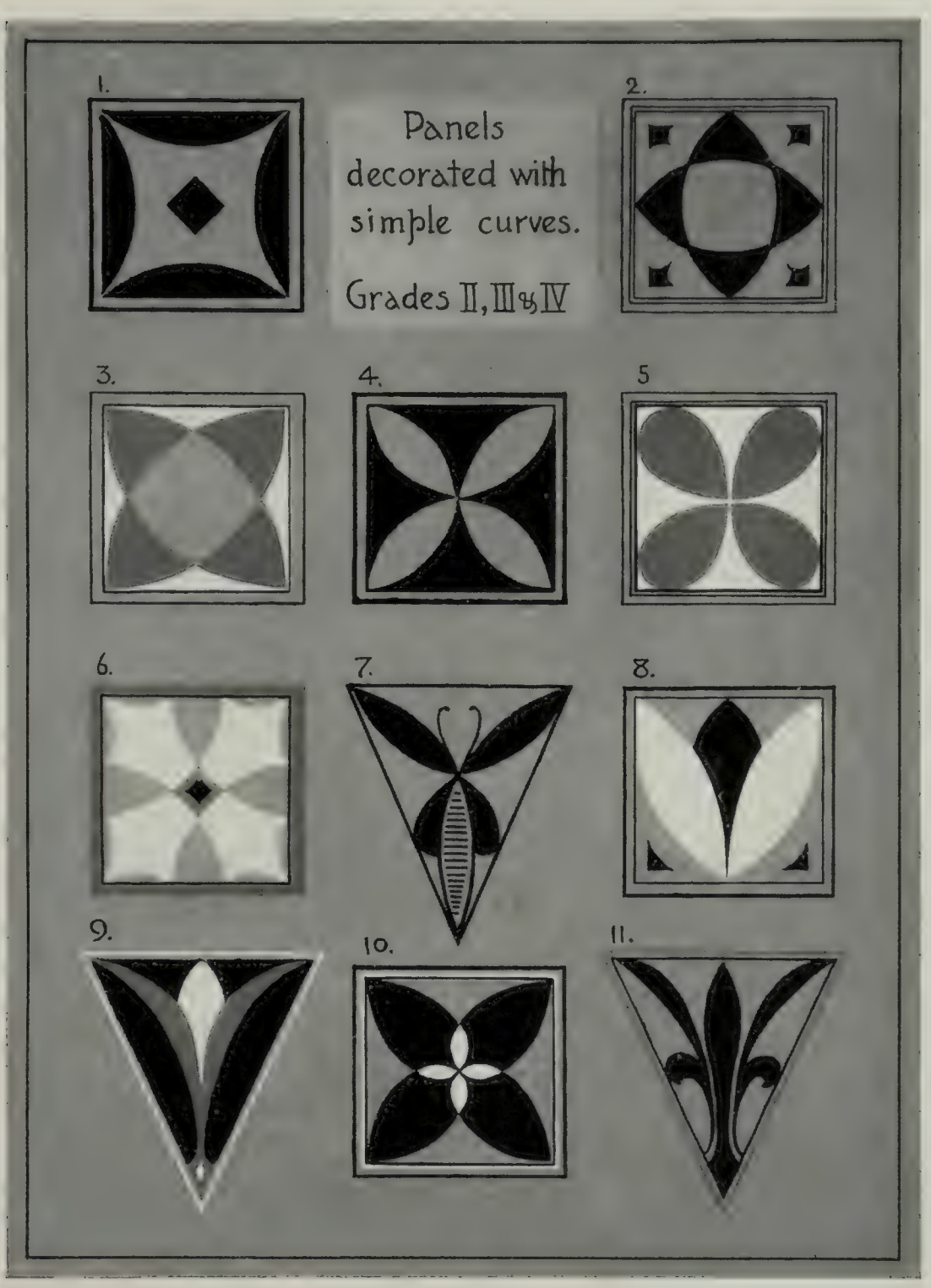


Bad. - Good. -


1.
2.
3
4.
5.
6.
7.
8.
9.
10.
11.
12
13.
14.
15.
16.
17.
18.
19.
Ruler Work
Bands
Grades II, III, IV.
20.


1.
2.
3.
1-6 Grades II and III.
4.
5.
6
Ruler Work.
Panels
7.
8.
9.
Nos. 7-13
Grades IV, V, VI
10.
11.
12.
13.

Bands decorated with Simple Curves
Grades II, III, IV.
1.
2
4
5.
6.
7.
8.
9.
10.
11.
12.
13.
14
15.
16.
17.


1.
2.
Panels
decorated with
simple curves.
Grades II, III & IV
3.
4.
5
6.
7.
8.
9.
10.
11.

Colour Harmonies for Grades II–IV.

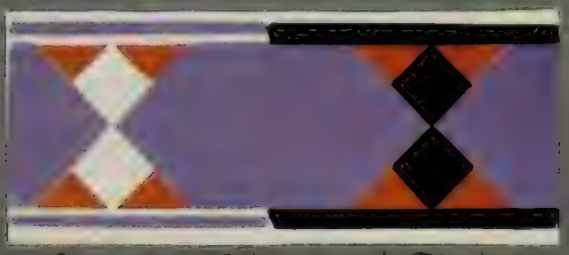
Monochrome.

Monochrome.

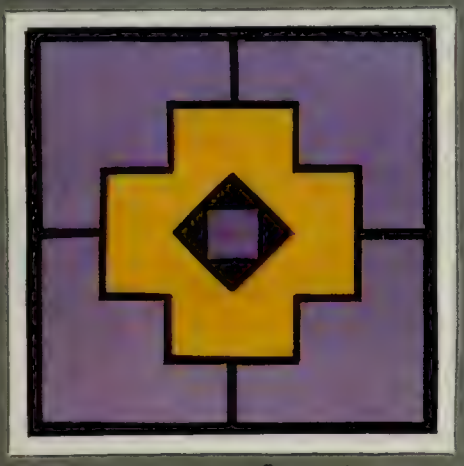
Two Secondary Colours.

Complementary Harmony.

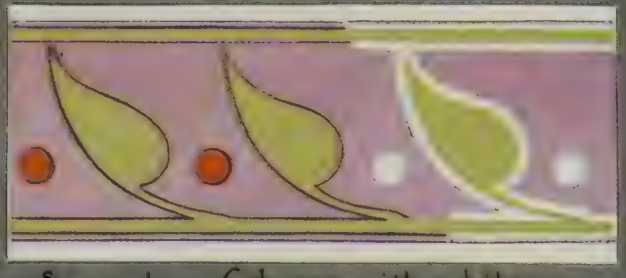
Colour Harmonies, Grades II–V.



Secondary Colours with Black & White.



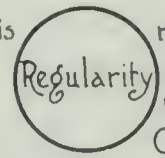
Complementary Harmonies.



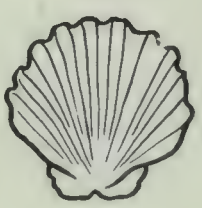
Secondary Colours with white.

Repetition Contrast and Variety

The circle is not often found in natural forms. Curvature is regular, consequently not very interesting.

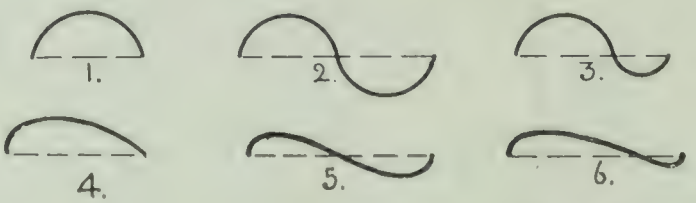


The Oval is the basic form of many natural objects.



The following curves are arranged in order of interest with regard to variety in curvature and proportion.

Regular curves 1, 2. 3 are less pleasing than Variable curves 4, 5, 6.



Variable curves also combine well with straight lines.

Decorative Motifs based upon nature forms and embodying three important principles of natural construction,
Repetition,
Contrast,
Variety.

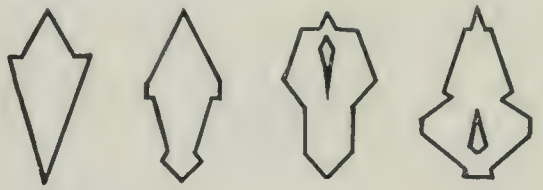
Note. Regular curve and greatest width at centre. Result uninteresting.

Greatest width placed above or below centre. Result more pleasing because of variety.

Most interesting because more variety shown in direction of line.

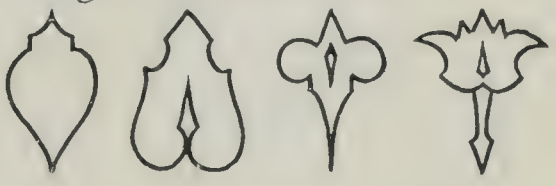
Copy a few of the given figures noting the variations of line and proportion and then try to construct new ones.

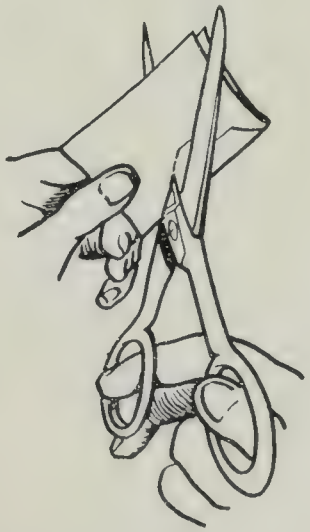
Straight line Motifs.



Curves.

Straight & Curved lines.

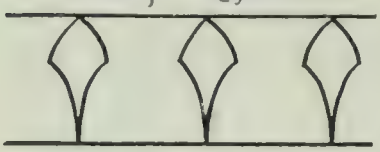




Cut motifs from folded paper. Watch for variety of line and proportion.

Suggested arrangements for constructing band patterns from any given motif similar to those shown on Plate

1. Simple Repetition.



2.

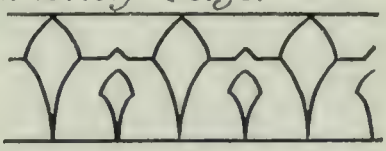
2, 3, 4. Simple Repetition with contrasting bands.

3.

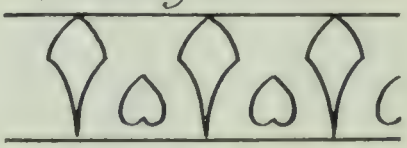
4.

Repetition with
5. variety of position

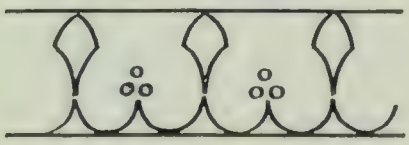
6. Variety of size.



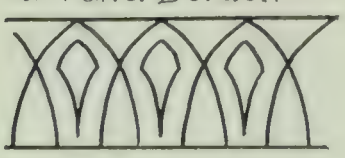
7. Variety of form.



8. The Link Border.



9. Panel Border.

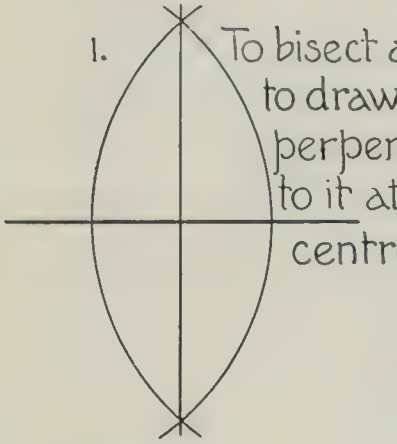


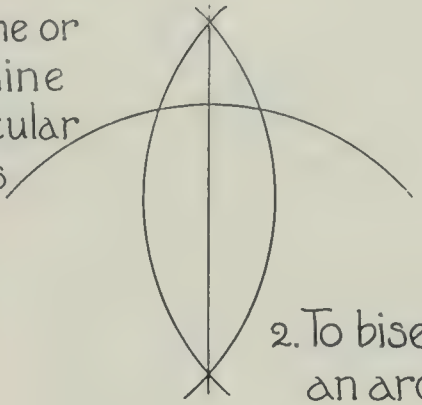
Note:– The addition of horizontal lines or bands binds the pattern together and makes contrast with the vertical lines of the repeats.

Bands of varying proportions are more pleasing than regular divisions.

Geometric Problems

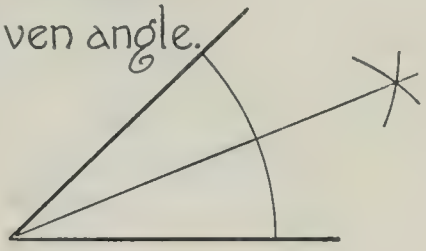
1. To bisect a line or to draw a line perpendicular to it at its centre.





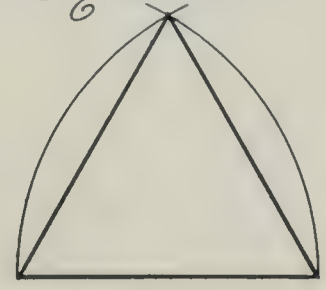
2. To bisect an arc.

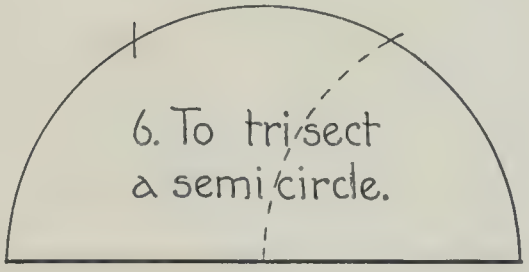
3. To bisect a given angle.



4. To draw a line parallel to a given line at a given distance.

5. To construct an equilateral triangle on a given base.

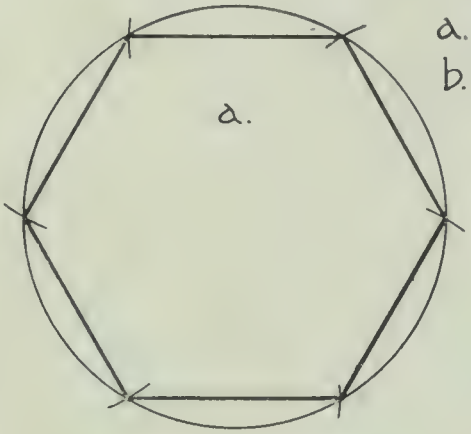


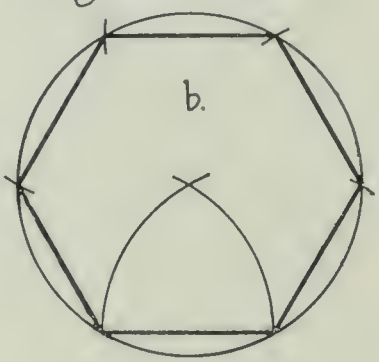


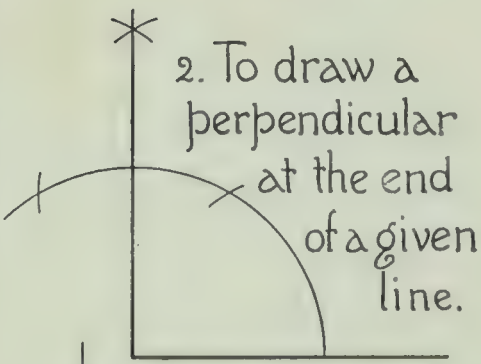
6. To trisect a semicircle.

❖ Geometric Problems ❖

1. To draw a regular hexagon,
   a.- in a given circle,
   b.- on a given base.

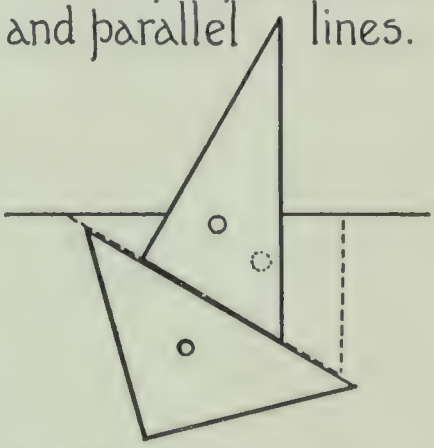


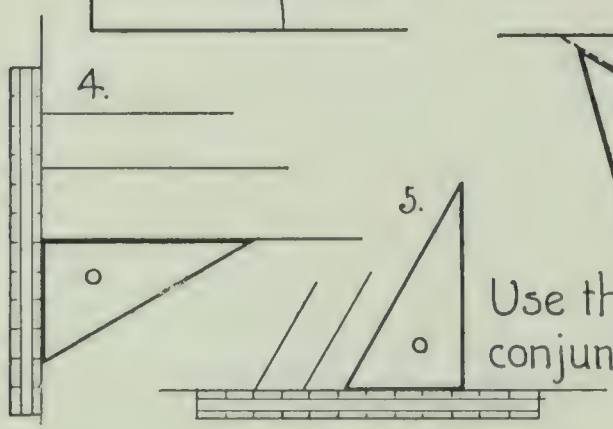




2. To draw a perpendicular at the end of a given line.

3-5. Use of setsquares for perpendicular and parallel lines.





Use the setsquare in conjunction with the ruler.

Panels with Radiation from the centre — simple repetition of any symmetrical motif combined with geometrical figures.

1.

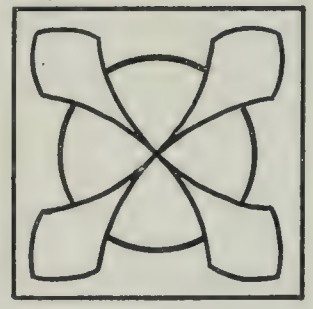
No.1. is unsatisfactory because all the lines tend to lead the eye from the centre. The design lacks unity.

2.

The contrasting lines of the small square and circle in figs. 2 and 4 tie the parts together and give a better harmony of line.

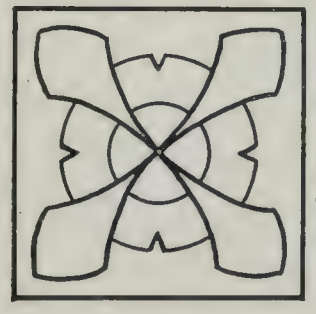
3.

4.



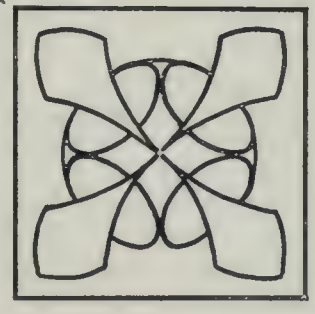
In figs. 3, 5 and 6 the simple geometrical tie lines have been elaborated.

5.



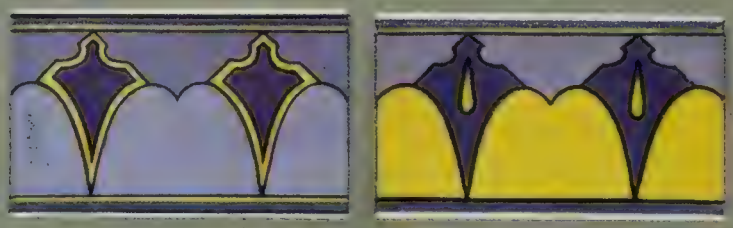
The square, circle and octagon are the best figures to use in the filling of the square, while the triangle, circle and hexagon are best adapted to the filling of the triangle.

6.

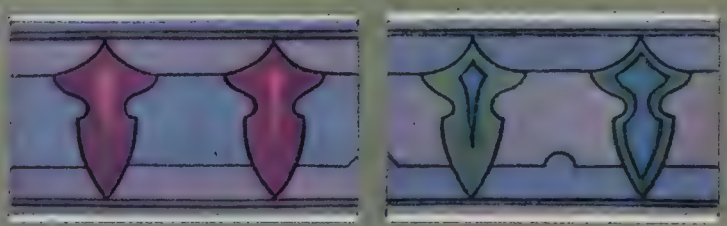


Colour Harmonies, Grades V–VII.

Monochrome.



Complementary Harmony.



Analogous Harmonies.

Greyed Complementary Harmony.

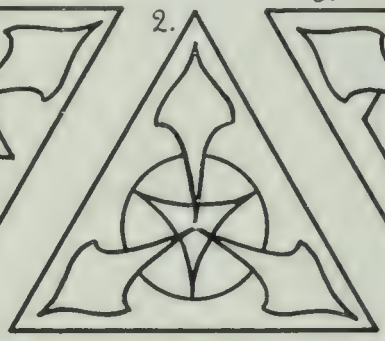
Colour Harmonies, Grades V-VII.
1.
Black and White with complementary colours
2.
Greyed Primary Colours
3.
Analogous.
Black with complementary colours
4.
5.

Panels with Radiation from the centre (continued)

All points mentioned on previous plate apply to these illustrations.

1.

2.



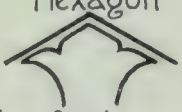
3.

4.

Triangle

Square

Hexagon

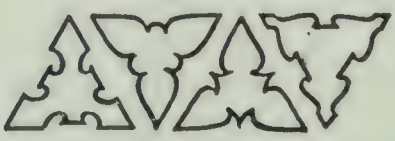


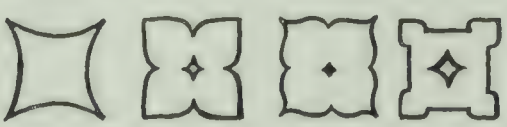
Circle

5.

Below.
Suggestions for developing common geometrical figures used in panel decoration.

Note in all examples how the forms used in decoration are adapted to the space to be filled.





Panels with Radiation from the centre.

The exercises on this page show the same geometrical arrangements as the previous examples but without the use of geometrical figures to bind the motifs together.

1.

When the motifs enclose spaces as in the shaded portions of fig 1, those spaces answer the same purpose as the small square in fig 2, Plate 40

Figure 2 gives the same effect by repeating the motif alternately large and small.

2.

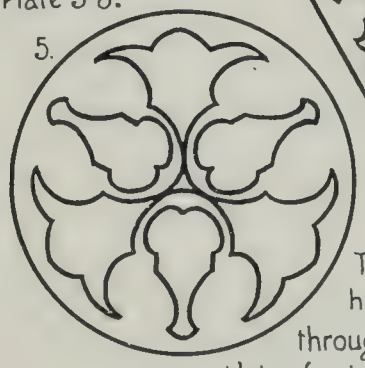
3.

Fig 3 is the same repeat as fig 2 with the small forms reversed.

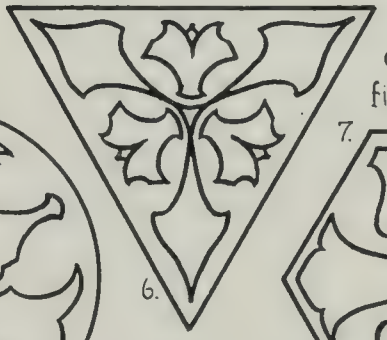
In figures 4, 5, 6 & 7 more variety is obtained by using two different motifs.

4.

Compare these arrangements with Plate 38.



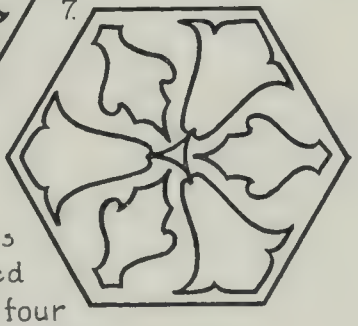
5.



6.

Note how central connecting links improve figs. 5, 6 & 7.

7.



The same motifs have been used throughout the last four plates for purposes of comparison.

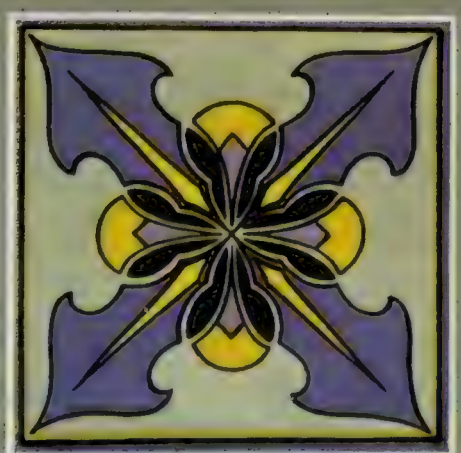
Colour Harmonies, Grades VII–VIII.

Split Complementary Harmony.

Greyed Primary Colours.

Greyed Primary Colour with black.

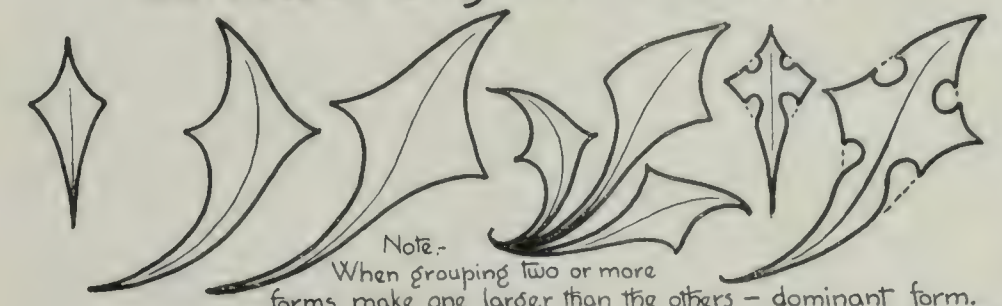
Analogous Harmony.



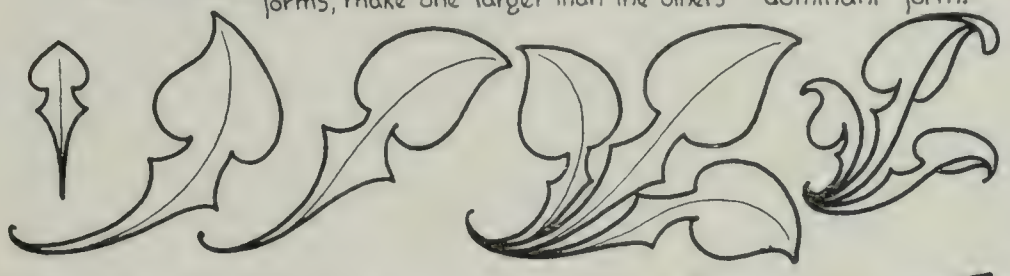
Split complementaries with black.

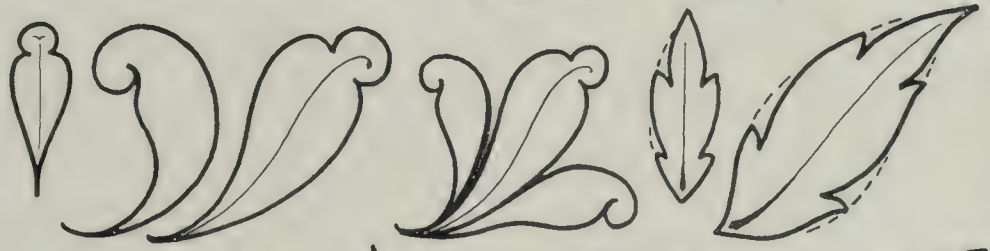
Analogous colours with black.

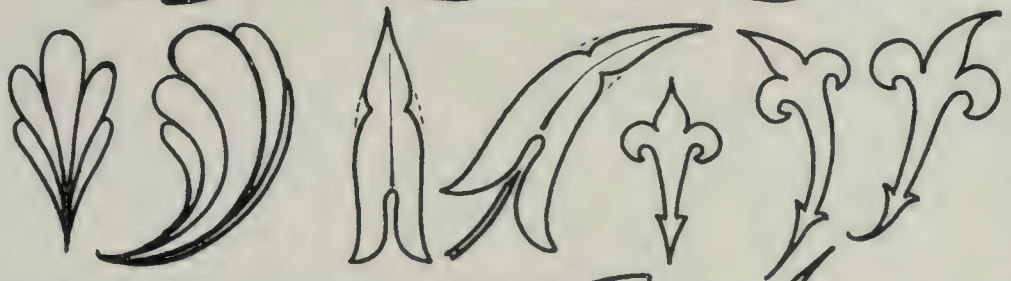
Exercises in Non-symmetrical Balance.



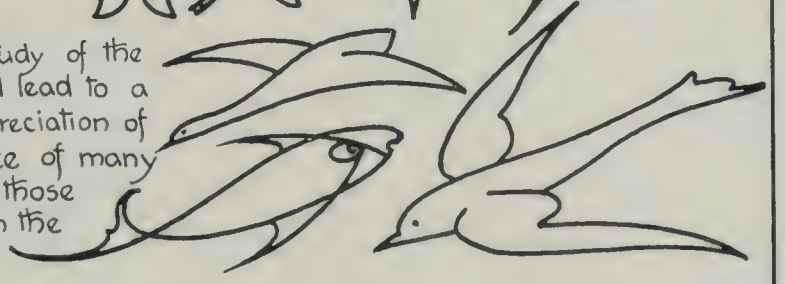
Note:-
When grouping two or more forms, make one larger than the others – dominant form.

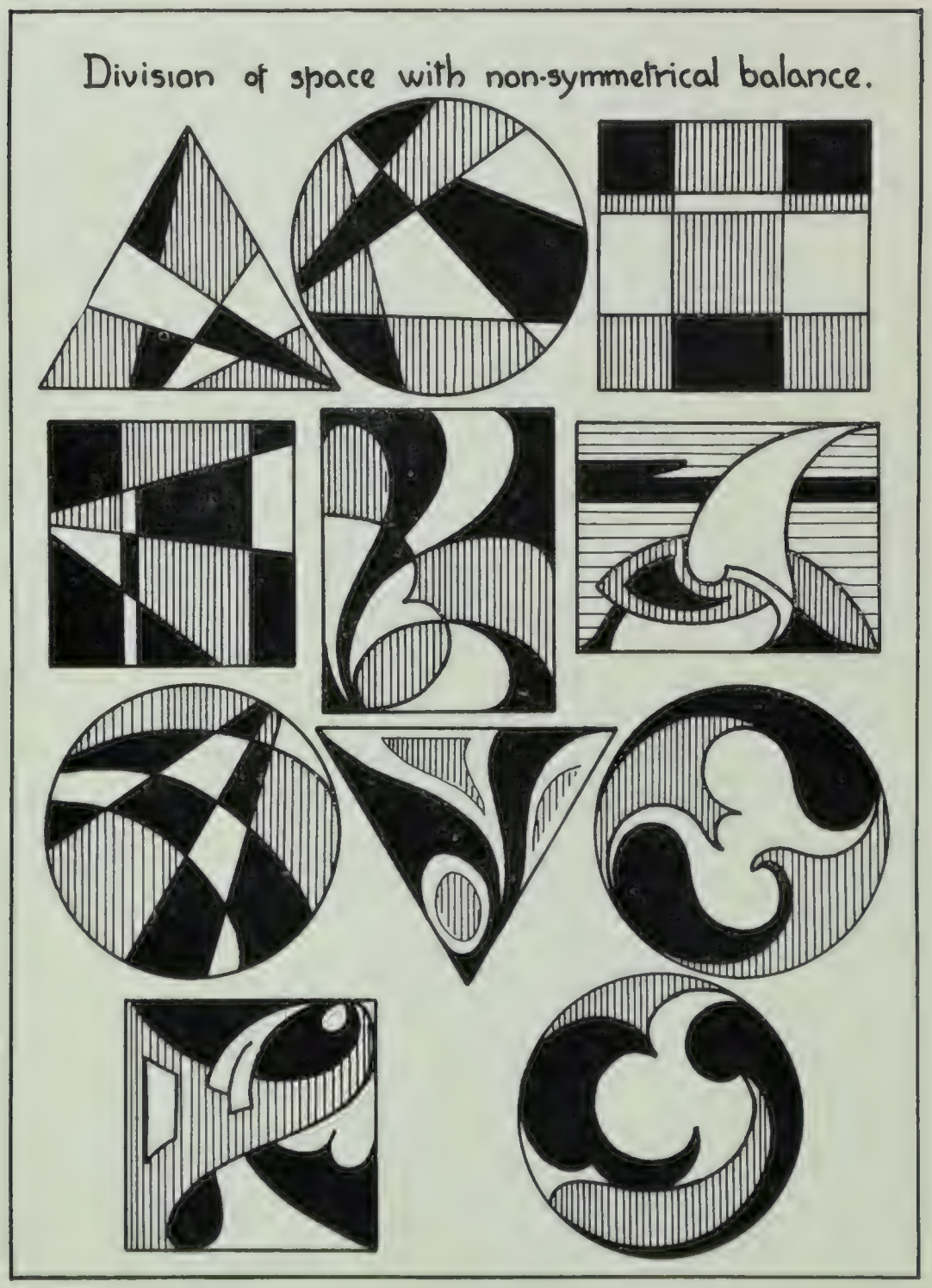






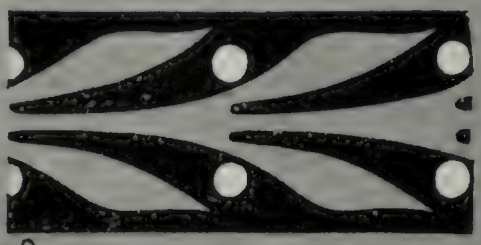
The drawing and study of the above forms should lead to a knowledge and appreciation of the line and balance of many nature forms like those on the right and on the following pages.




Division of space with non-symmetrical balance.

Examples of Historic Ornament

1. Egyptian.

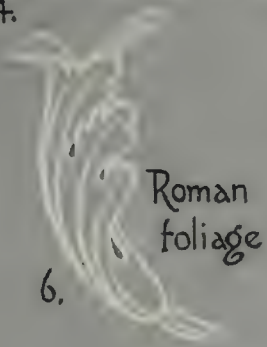


2.

3.

4.

5 2,3,4,5 Greek.



Roman foliage

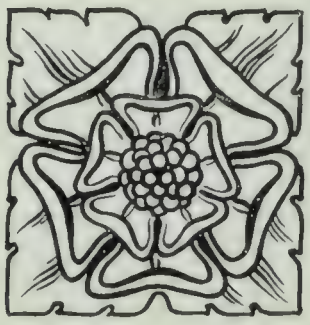
6.

7.

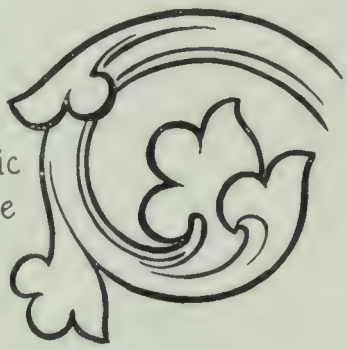
8.

7,8. Gothic foliage.

Examples of Historic Ornament



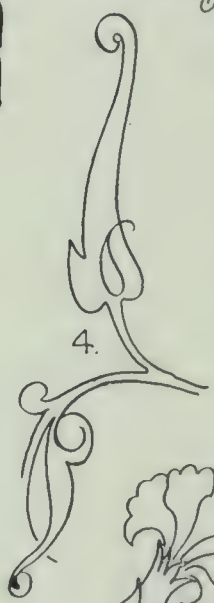
1. Gothic flower.



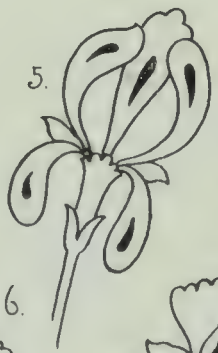
2. Early Gothic foliage

3.

3 & 4 Early Persian leaf-like ornament.



4.



5.

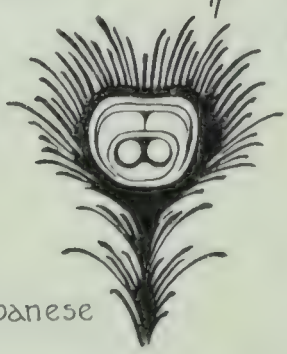
5, 6, 7. Later Persian flower forms.

6.

7.

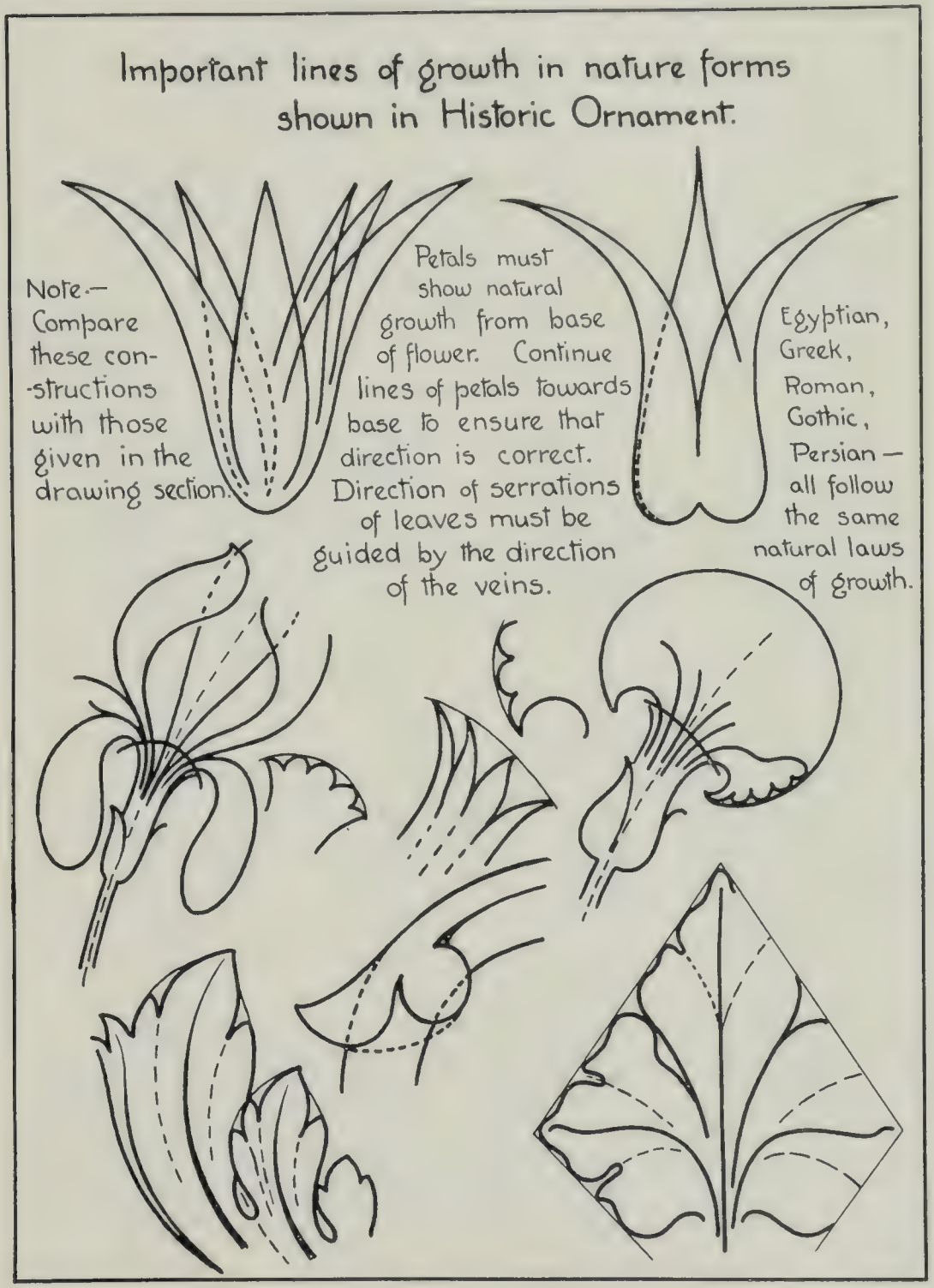
Peacock Feathers.

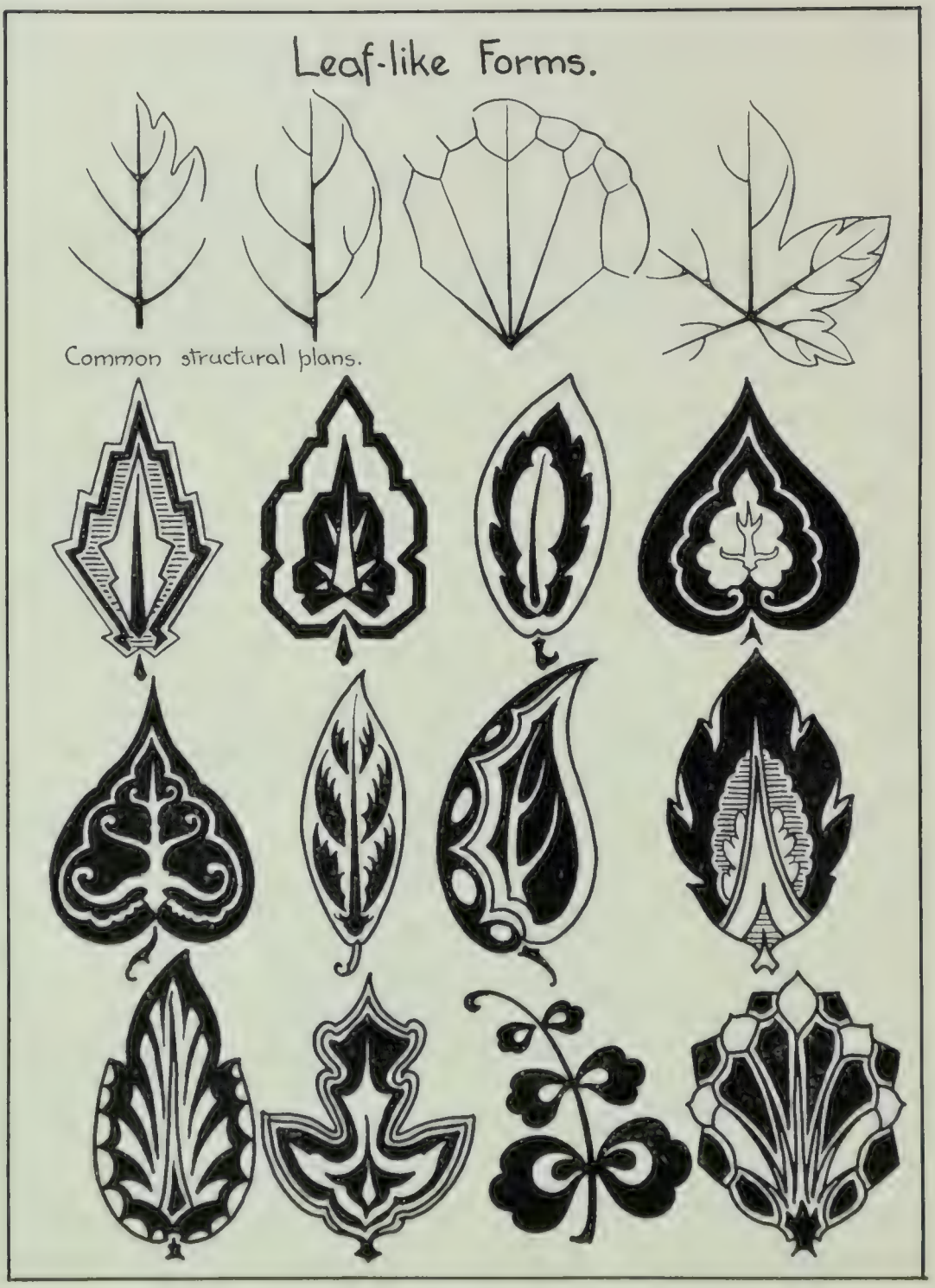
Italian



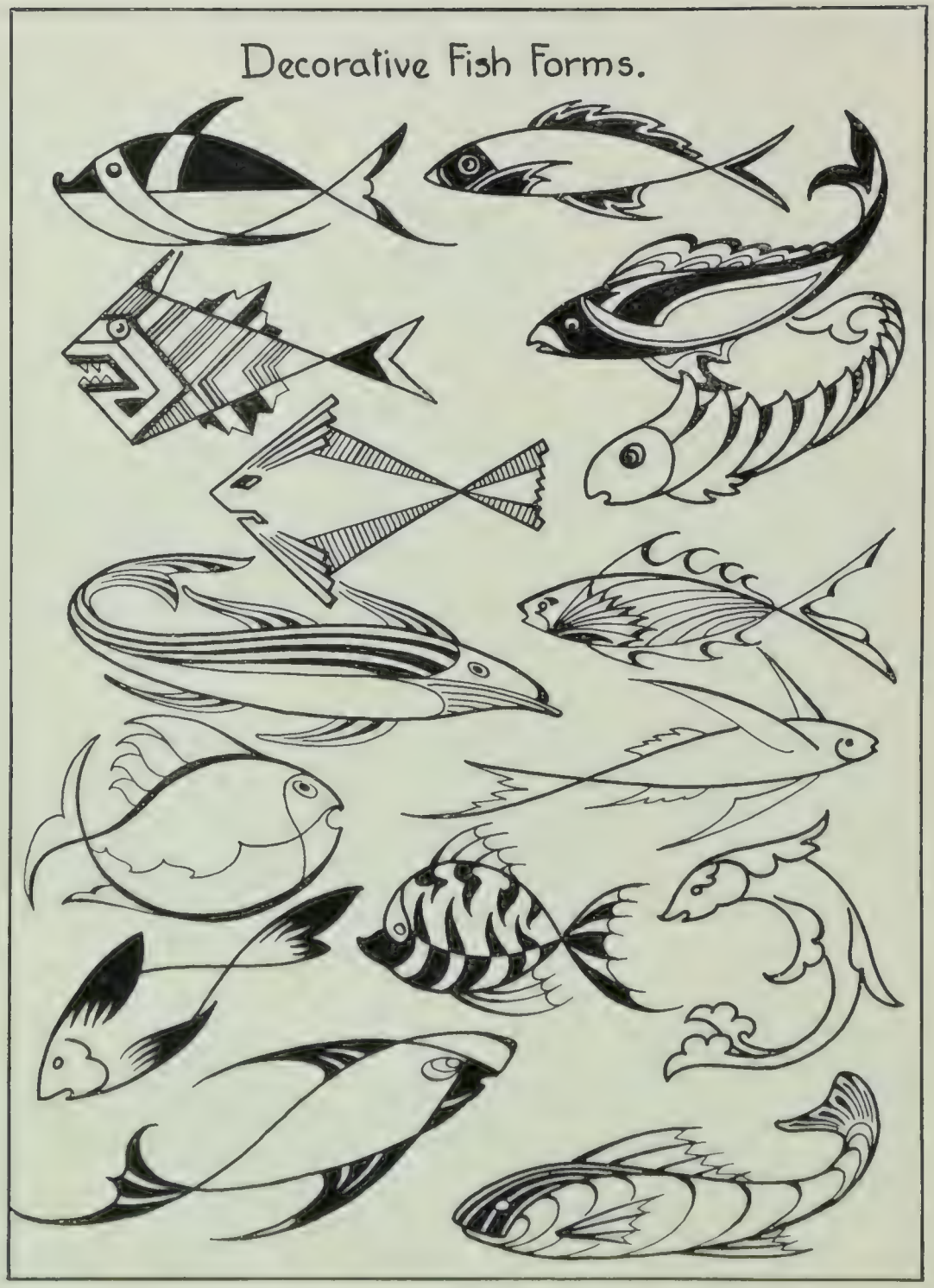
Japanese

Japanese Butterfly.


Important lines of growth in nature forms shown in Historic Ornament.
Note.— Compare these con-structions with those given in the drawing section.
Petals must show natural growth from base of flower. Continue lines of petals towards base to ensure that direction is correct. Direction of serrations of leaves must be guided by the direction of the veins.
Egyptian, Greek, Roman, Gothic, Persian — all follow the same natural laws of growth.

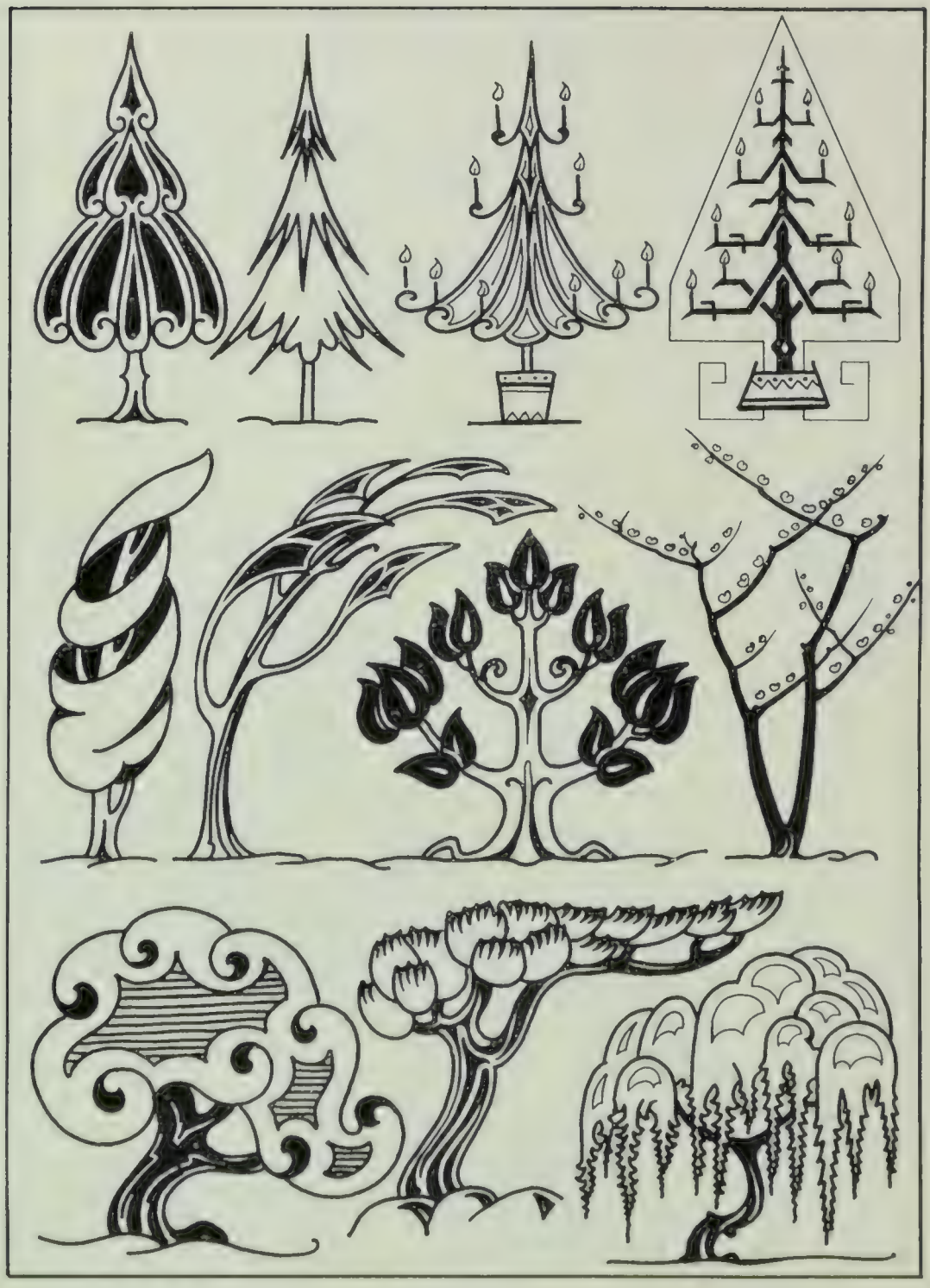

Leaf-like Forms.
Common structural plans.

Flower-like Forms.


Decorative Fish Forms.

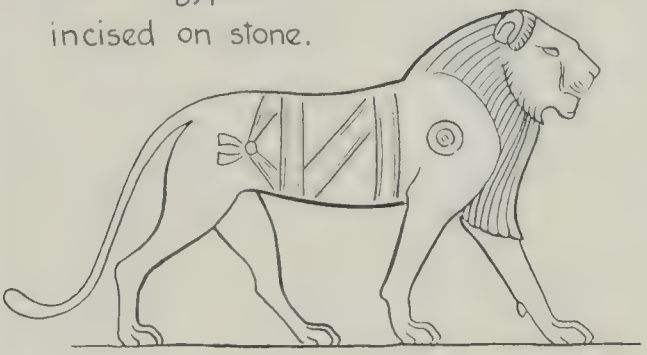
Decorative Bird Forms.

PLATE 69

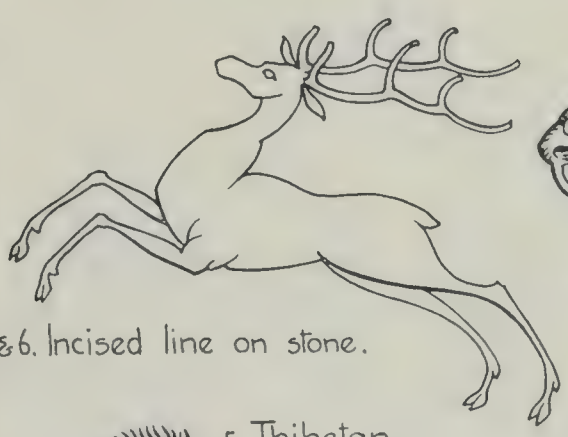


Decorative Animal Forms

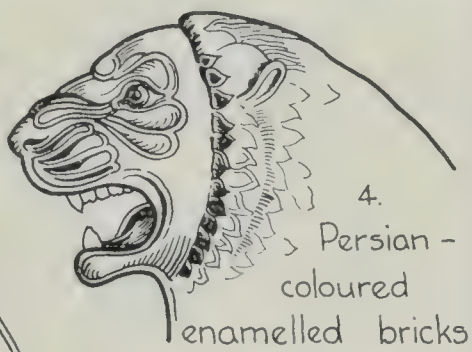
1. Lion - Egyptian - incised on stone.



2. Assyrian - stone-carving.

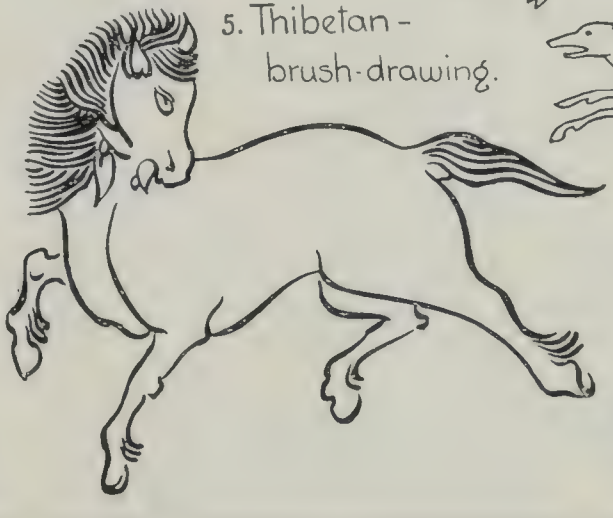


3 & 6. Incised line on stone.

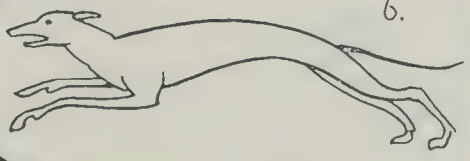


4. Persian - coloured enamelled bricks.

5. Thibetan - brush-drawing.

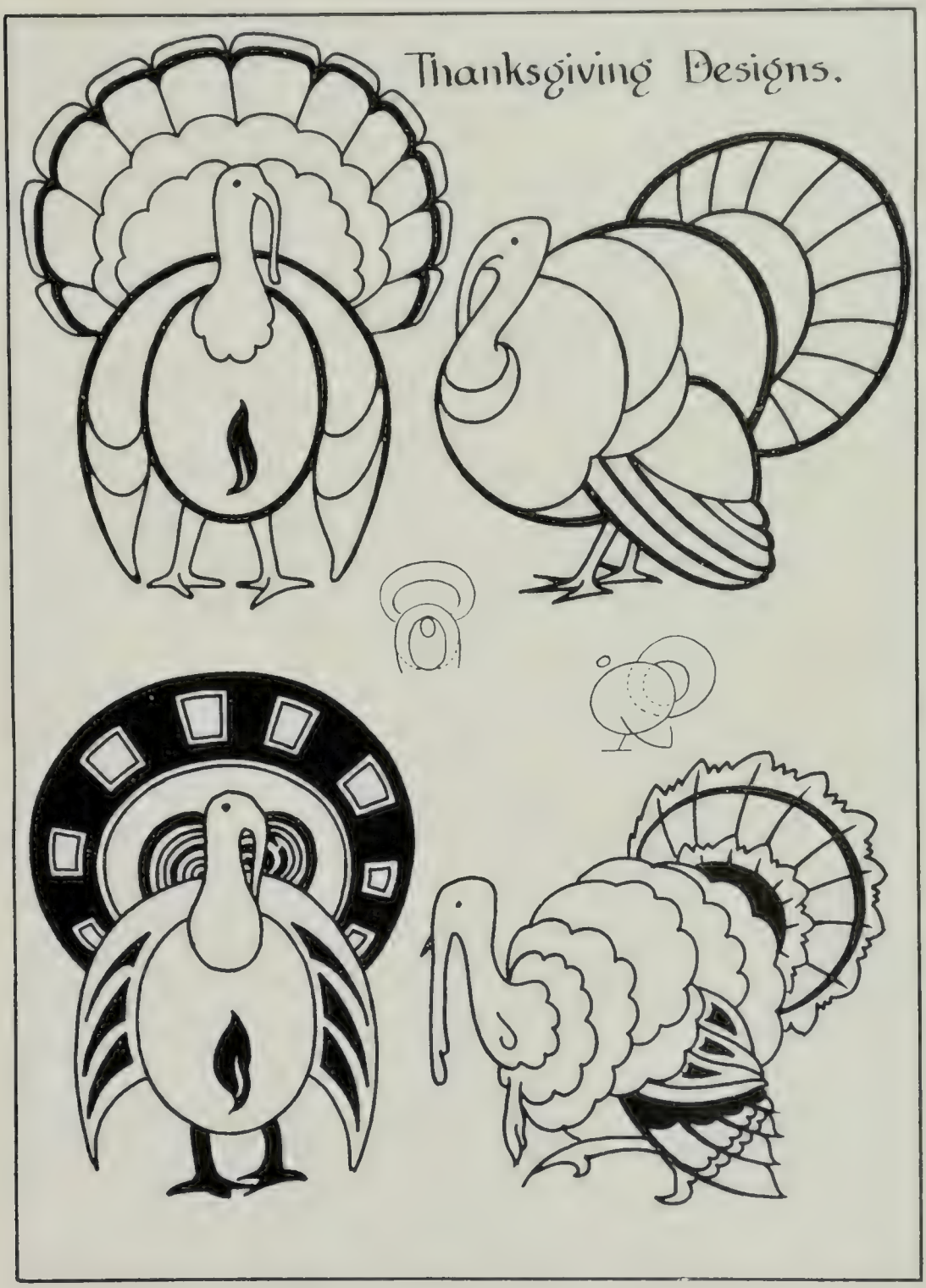


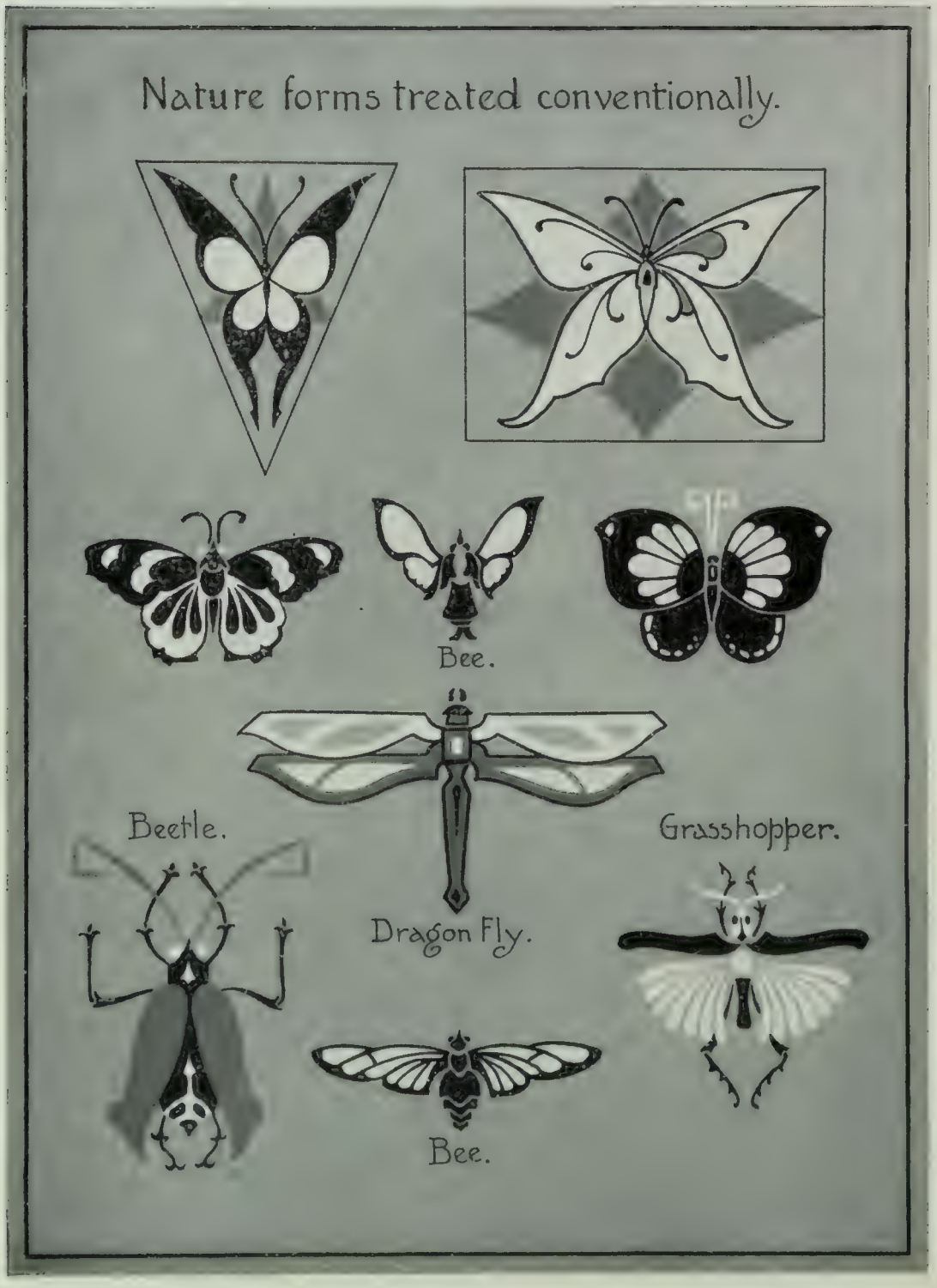
6.

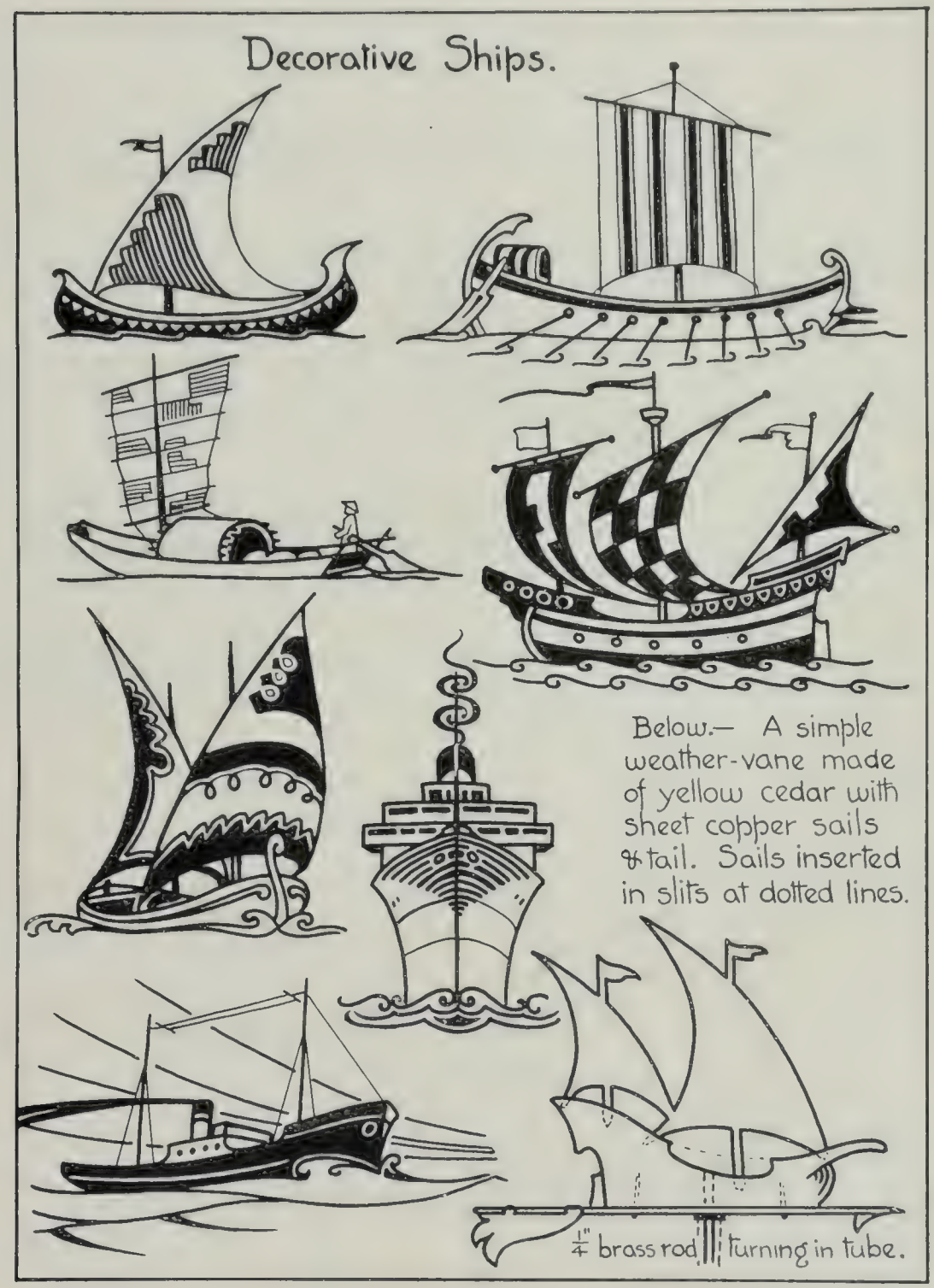


7. Pen-drawing.

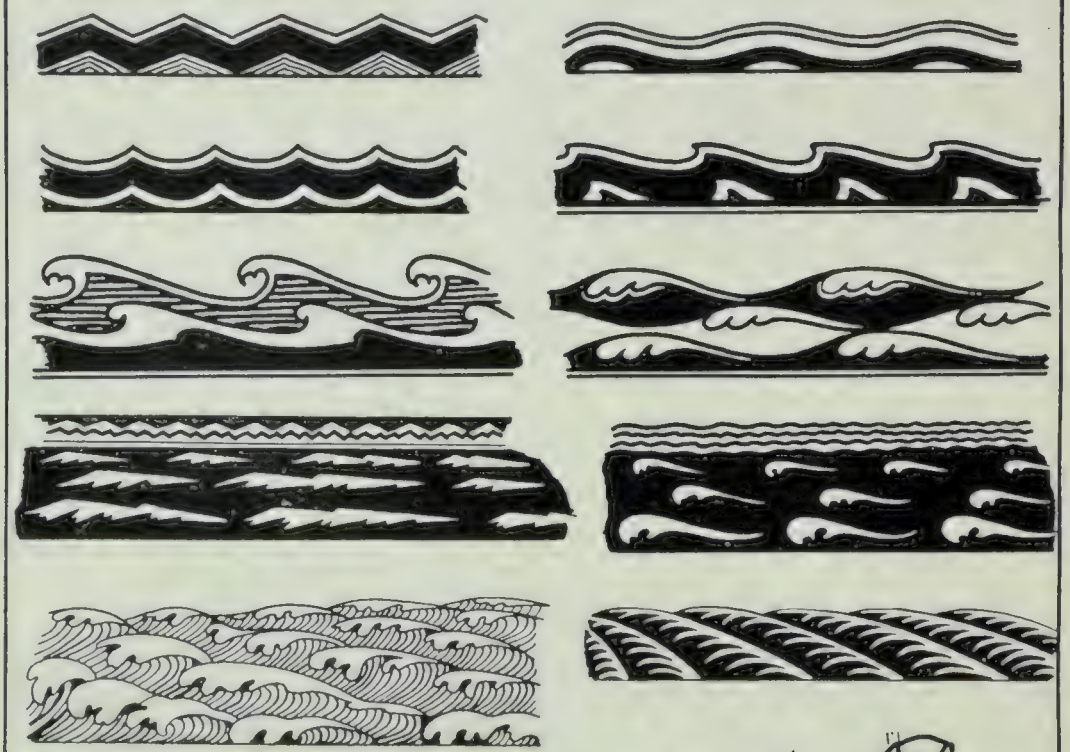
Hallow e'en Designs


Thanksgiving Designs.


Nature forms treated conventionally.
Bee.
Beetle.
Dragon Fly.
Grasshopper.
Bee.

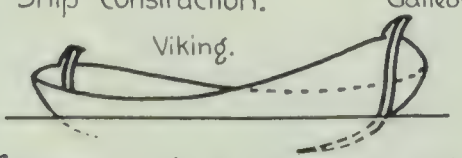

Decorative Ships.
Below.— A simple weather-vane made of yellow cedar with sheet copper sails & tail. Sails inserted in slits at dotted lines.
¼" brass rod
turning in tube.

Wave-like decorations.

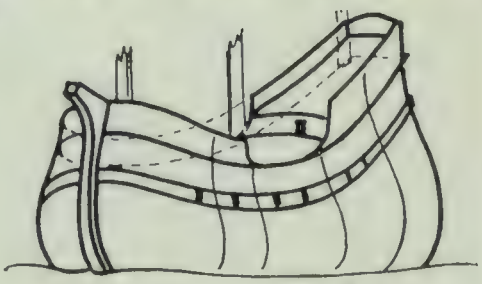


Ship construction.

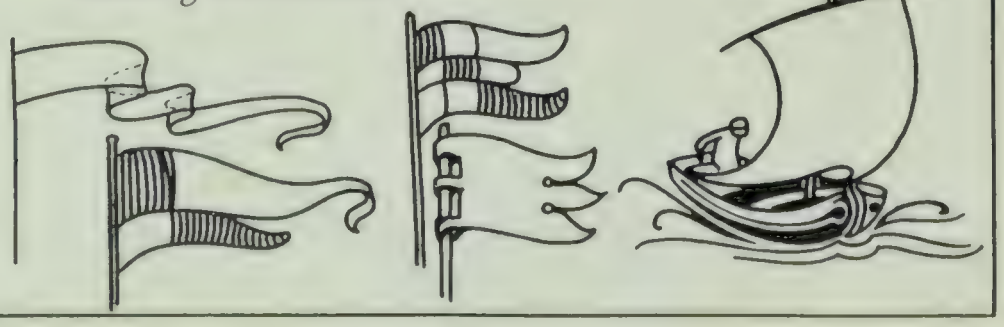
Viking.



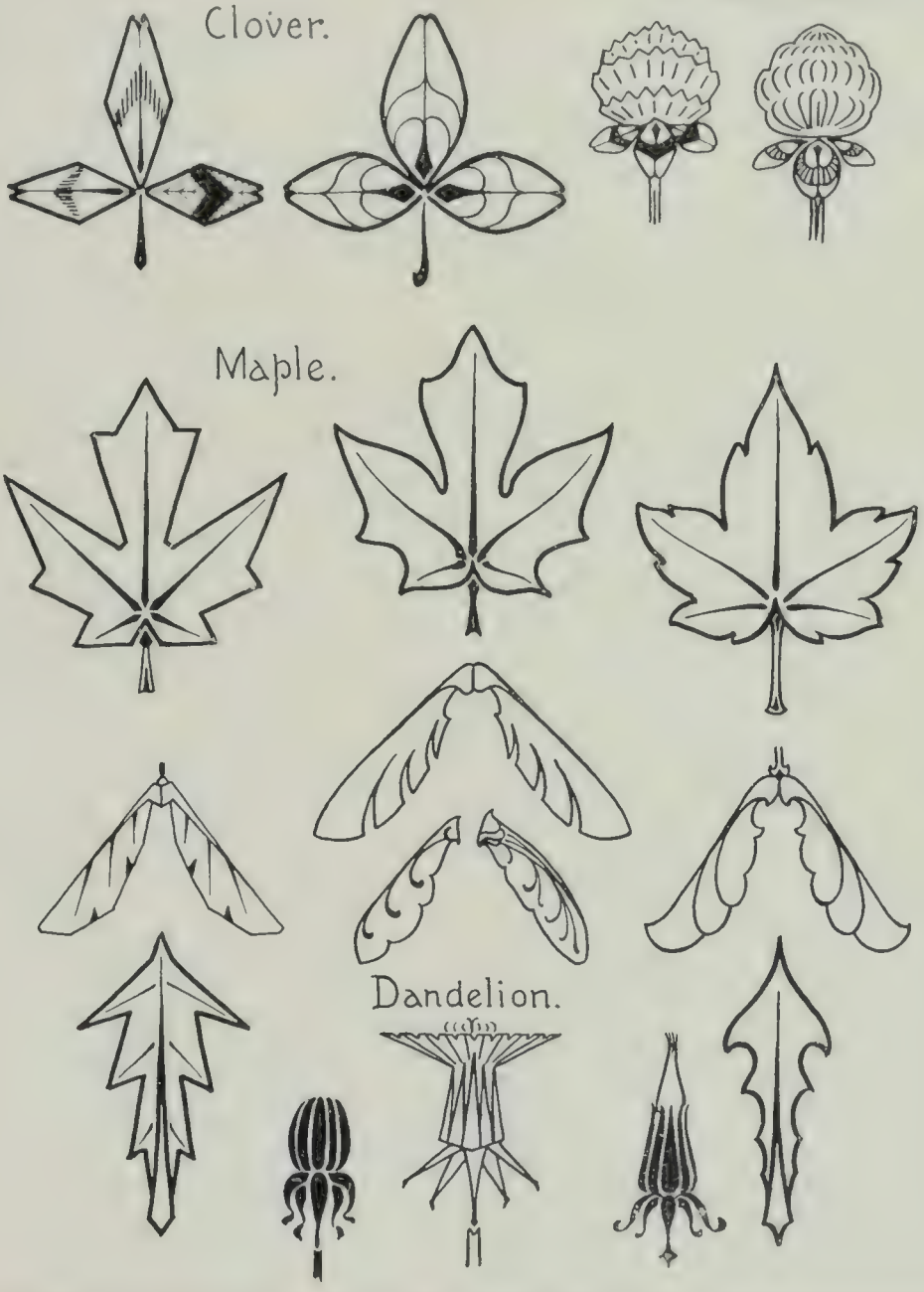
Galleon.

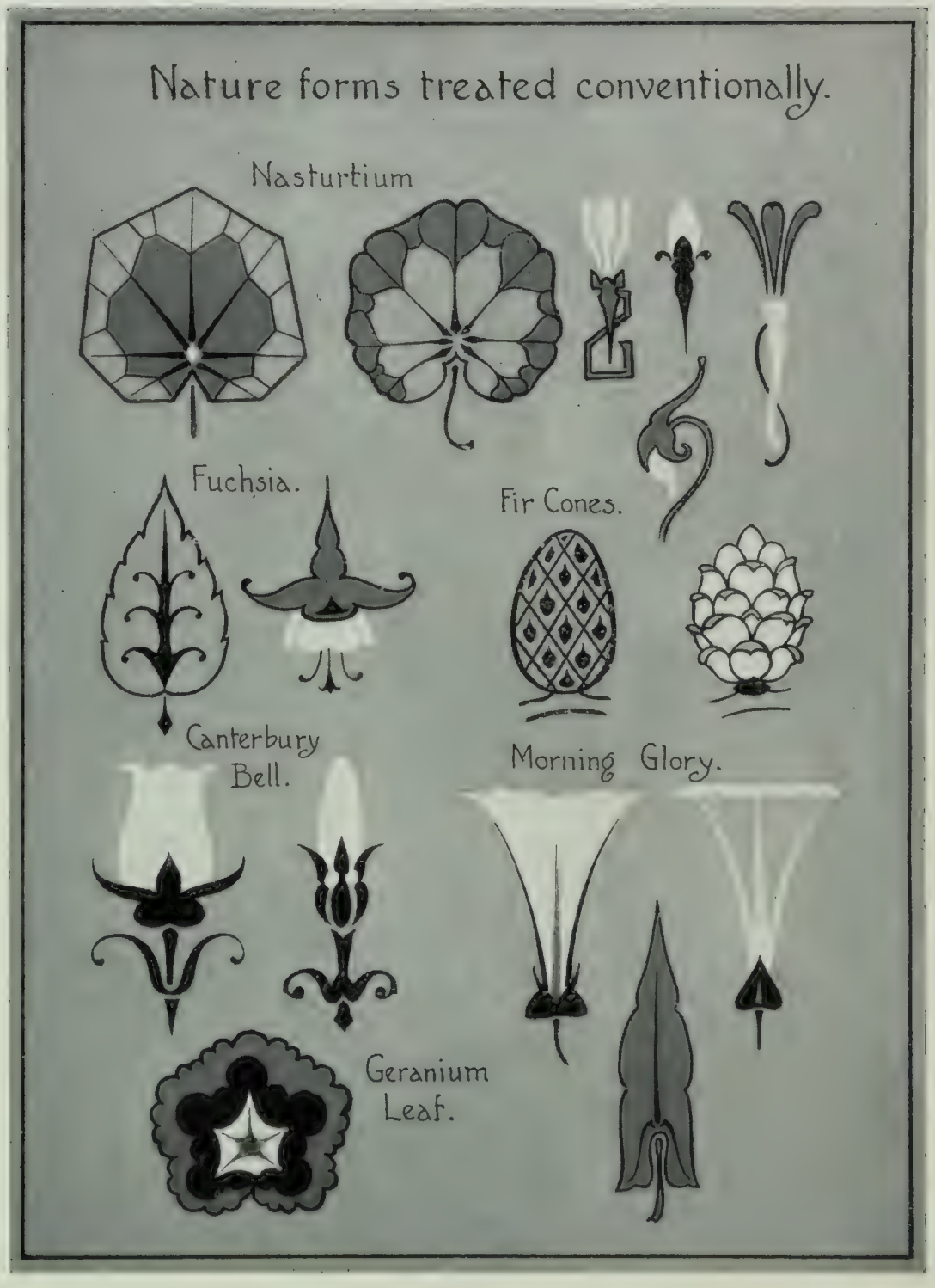


Compare with diagrams on leaf drawing construction.

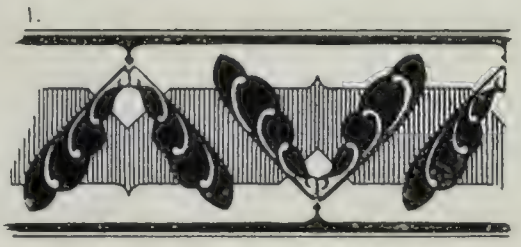


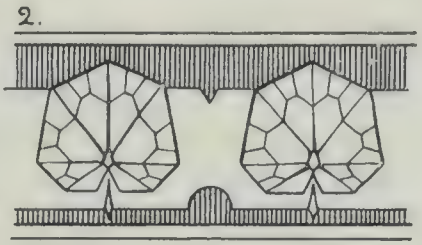
Nature forms treated conventionally for purposes of decoration.

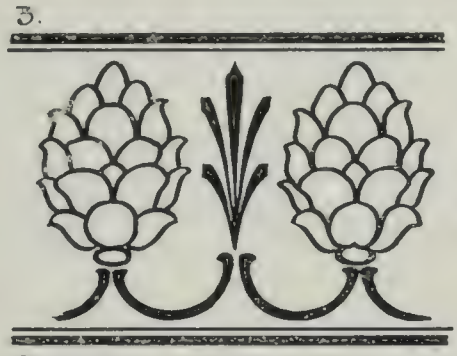


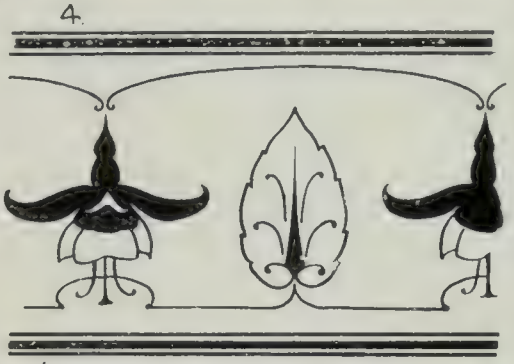

Nature forms treated conventionally.
Nasturtium
Fuchsia.
Fir Cones.
Canterbury Bell.
Morning Glory.
Geranium Leaf.

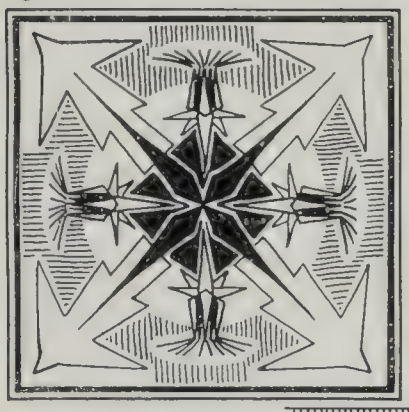
Nature Forms in Ornament

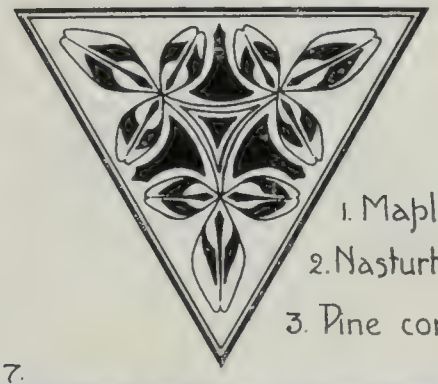




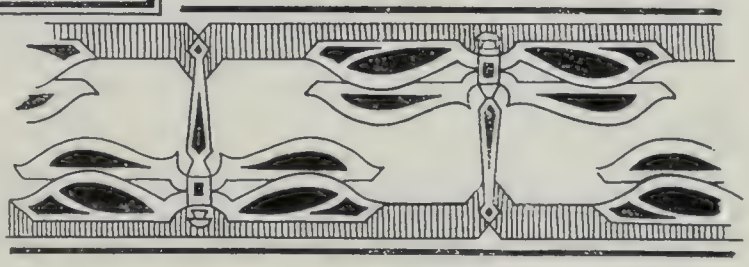




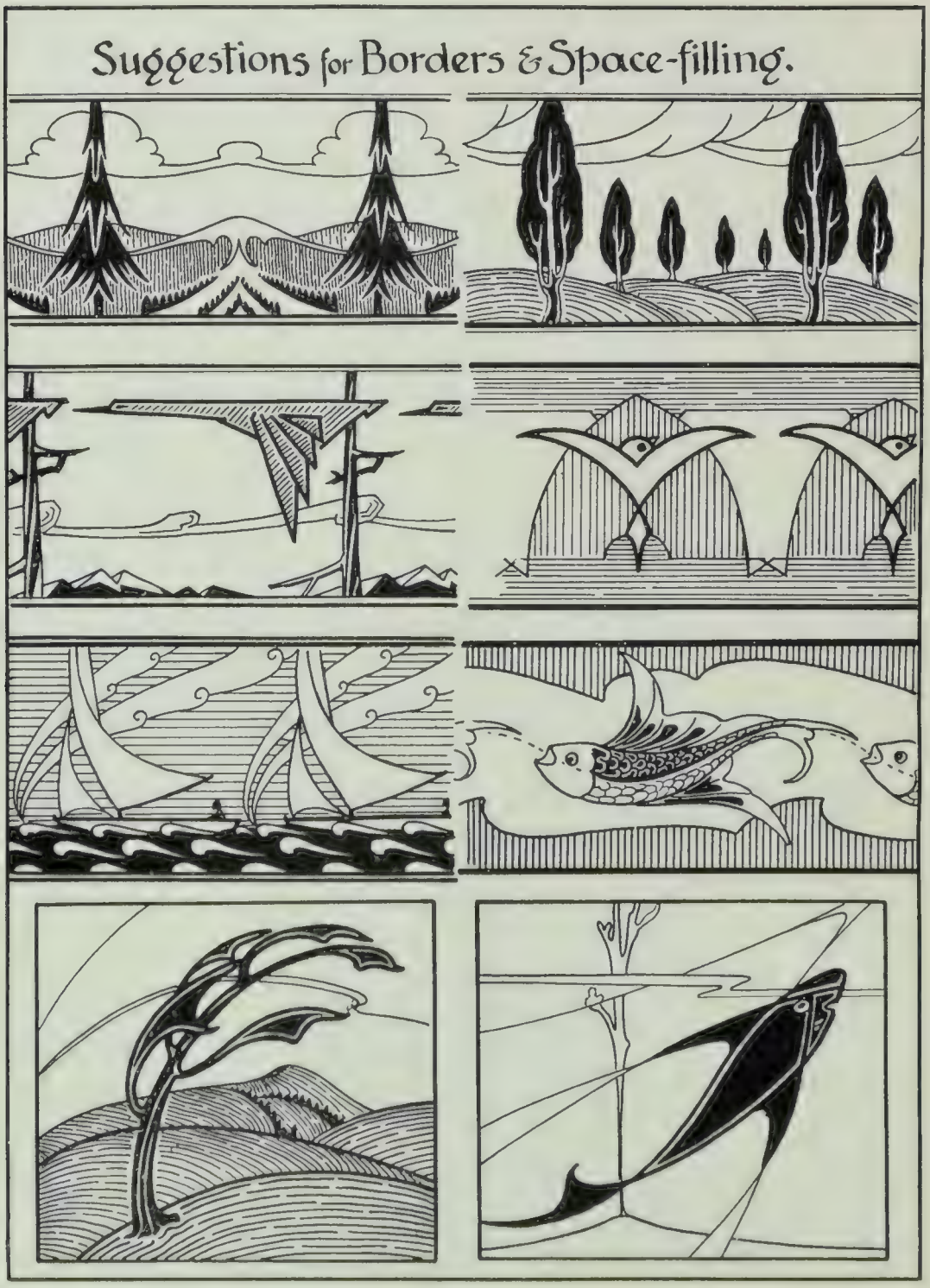




1. Maple.
2. Nasturtium.
3. Pine cone.



4. Fuchsia.
5. Dandelion.
6. Clover.
7. Dragon fly.


Suggestions for Borders & Space-filling.

Diaper Patterns

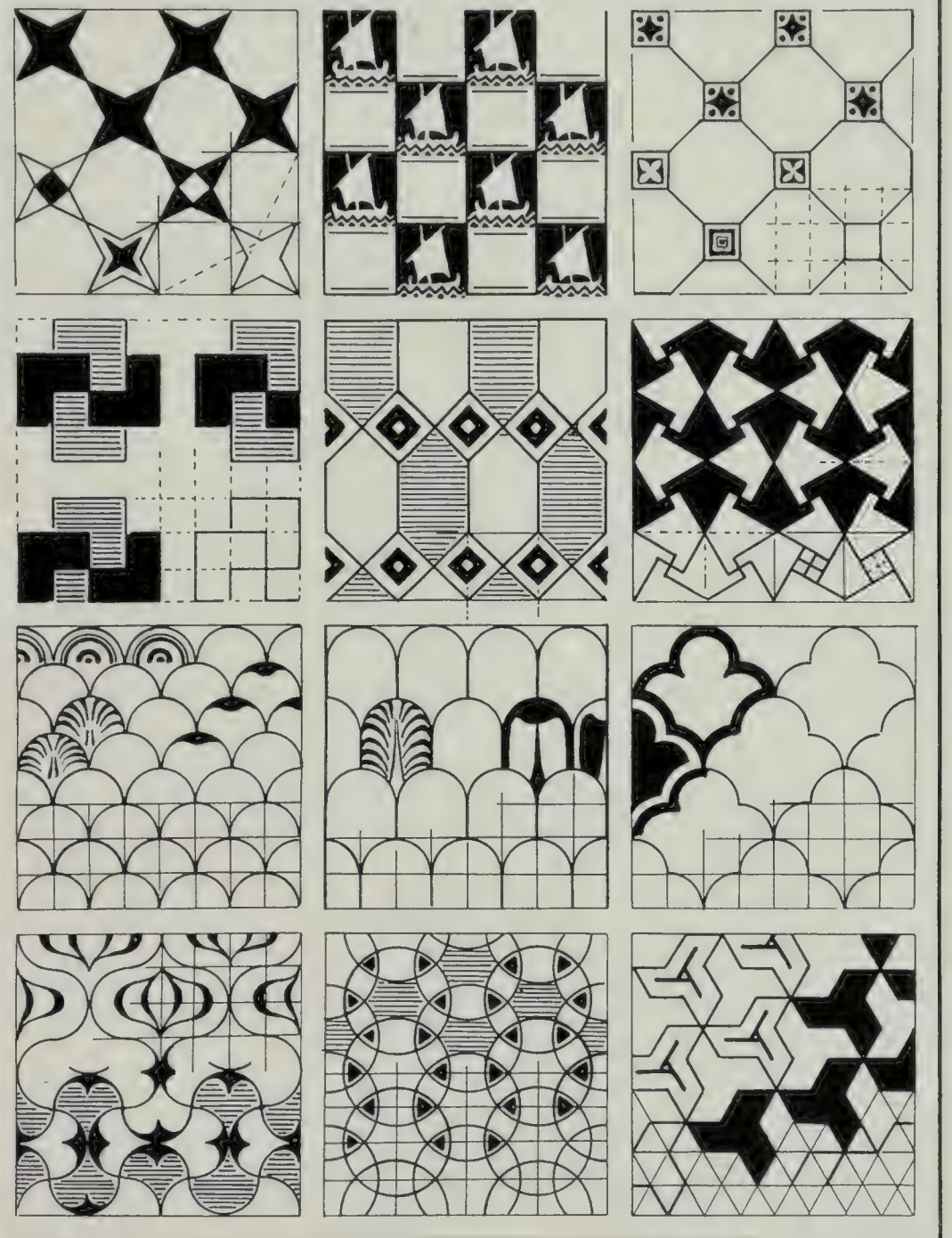


PLATE 81

PANELS- EXERCISES IN BALANCE.

SHIP
DESIGNS
FOR
XMAS

Suggestions for Xmas.

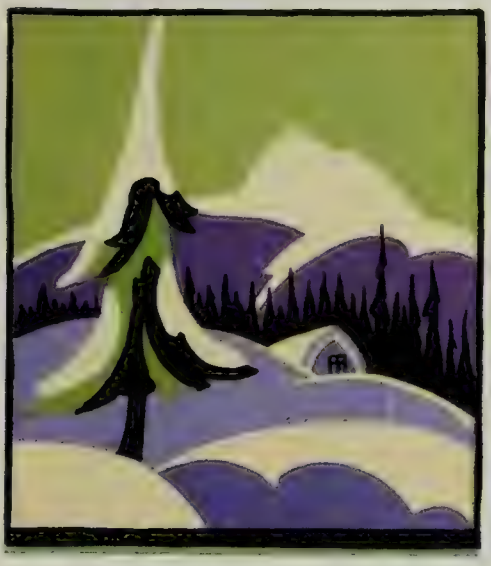
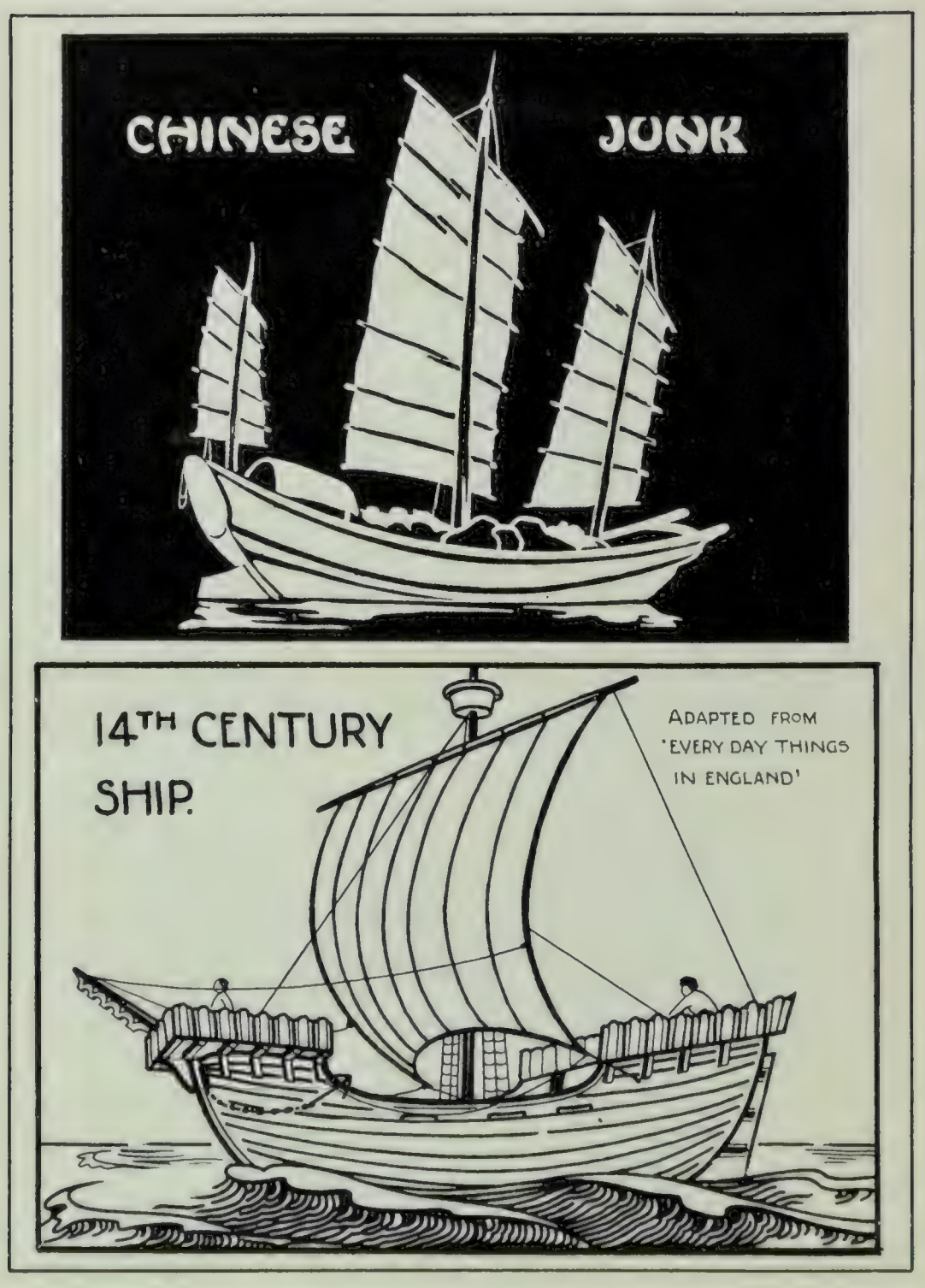


PLATE 85

Adapted from Wrong's History.


CHINESE JUNK
14TH CENTURY SHIP.
ADAPTED FROM 'EVERY DAY THINGS IN ENGLAND'

AIR TRANSPORT
AVIATION
1931
From Photographs.

1.
CRUSADER. 13TH. CENTURY
1. & 2.
Adapted
from
'Everyday
Things in
England.'
Quennell.
2
15TH CENTURY.
Fashionable
Costume.
14TH.
CENTURY
Adapted
from
Wrong's
History of
England.

Totem - Pacific Coast.

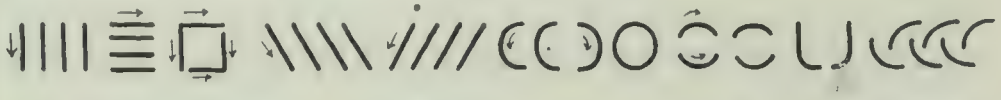
Eagle Mask,
Pacific coast
Indians.

GRAIN ELEVATOR
LOGGING

EGYPT
FUJIYAMA
From photographs.

SKELETON CAPITALS FOR PENCIL OR PEN. **LETTERING** DRAW WITH SLOW DELIBERATE STROKES.

Exercises to correct irregularity of strokes.



EFHILT 147 AKMNVWXYZ

BDPRJU 235689 CCGOQS

Alphabets may be contracted or expanded as required, but the relative widths of letters should be retained.

ABCDEFGHIJKLMNOPQRSTUVWXYZ

ABCDEFGHIJKLMNOPQRSTUV

Narrow letters, BEFKLPRSYX IJ

Wide, MWOQCGD Medium, HNUAVTZ

Cross strokes should be uniform. Place them above and below centre of letter.

Spacing letters – judge by eye – do not measure.

General rule – wide space, N P. medium, O D. narrow, D O.

Spacing words – Make words compact – separate words by space of letter O. WATCH O YOUR SPACING

Spacing of lines should be from half to one letter height apart for capitals; about twice the height for small letters, to allow space for ascending and descending strokes.

SKELETON SMALL LETTERS.

LETTERING

TYPES OF BLOCK LETTERS.

ilfjtr kvxyz · hmnuw abcde

gopqs alternative forms aaagwyz

Proportion of capitals to small letters may vary. And And

Rules for spacing, the same as for capitals on previous page.

Type letters from which alphabets can be formed.

ANKLBROGS

BRGOJSU

Straight line letters the same as those above.

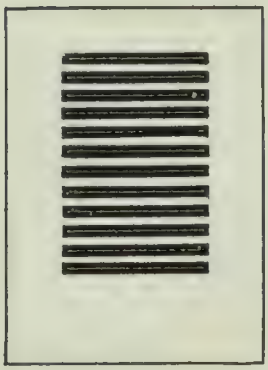
ANKLBROGS

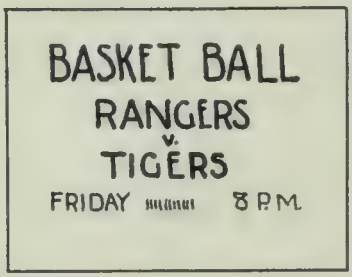
ANKLBROGS

Remember that legibility is essential to good lettering.

For further material see Alphabets Old and New. Lewis Day, also Design for Industrial Arts, Lettering. John Kyle.

Placing lettering or drawings upon the paper.



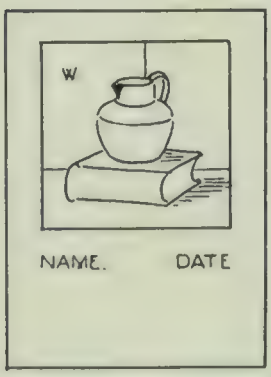


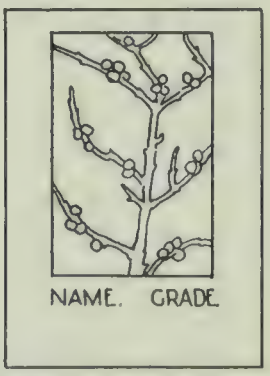
Wide margins, as a rule, look better than narrow.

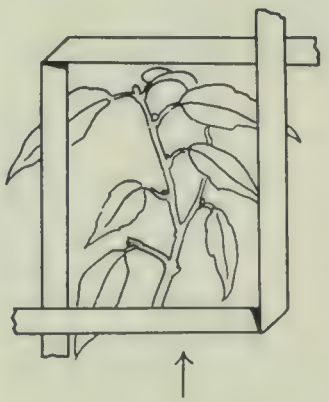
Make bottom margin widest, side margins wider than top.

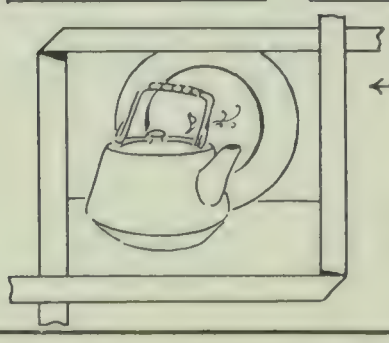
Place drawings above centre of paper.

Place initial, name or title where it will balance drawing & not spoil the margins.









A view finder made of two strips of paper is helpful in arranging a good composition, both in nature and object drawing.

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